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PowerFlex[®]

DPI™ COMMUNICATION ADAPTERS



BACnet[®] MS/TP ADAPTER (20-COMM-B)
ControlNet[™] COAX ADAPTER (20-COMM-C)
DeviceNet[™] ADAPTER (20-COMM-D)
EtherNet/IP[™] ADAPTER (20-COMM-E)
RS485 HVAC ADAPTER (20-COMM-H)
INTERBUS[™] ADAPTER (20-COMM-I)
CANopen[®] ADAPTER (20-COMM-K)
LonWorks[®] ADAPTER (20-COMM-L)
MODBUS/TCP ADAPTER (20-COMM-M)
PROFIBUS DP[™] ADAPTER (20-COMM-P)
ControlNet[™] FIBER ADAPTER (20-COMM-Q)
REMOTE I/O[™] ADAPTER (20-COMM-R)
RS485 DF1[™] ADAPTER (20-COMM-S)
RS232 DF1[™] MODULE (1203-SSS)
COMPACT I/O[™] MODULE (1769-SM1)
DPI WIRELESS INTERFACE MODULE
DPI EXTERNAL COMMUNICATIONS KIT
1203-USB CONVERTER (1203-USB)



PowerFlex[®]
Communications

ALLEN-BRADLEY • ROCKWELL SOFTWARE

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Automation**

6 / 2011
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PRODUCT PROFILE

20-COMM-B BACnet® MS/TP ADAPTER

The PowerFlex™ 20-COMM-B adapter provides an internal BACnet MS/TP connection to PowerFlex® 70 (SC or EC), 700 (SC or VC), and 700H drives. The adapter provides a means to control, configure, and collect data over a BACnet MS/TP network.

PRODUCT HIGHLIGHTS

Installation – The adapter mounts internal to the drive to save valuable panel space, and is field installable. If an external connection is needed, the adapter can also be installed in a DPI External Communications Kit (20-XCOMM-DC-BASE).

Configuration Switches – The adapter has configuration switches for setting the MAC address (addressable up to node 127), and enabling/disabling the termination and bias resistors.

Supported Data Rates – The adapter can “autoband” out-of-the-box or be set to one of four selectable baud rates (9600, 19200, 38400 or 76800 bps), and can be configured using a parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over BACnet MS/TP to access other Allen-Bradley® drives. This eliminates the need for a separate network connection and interface.

BACnet Objects – Unlike other PowerFlex drive communication adapters, BACnet MS/TP adapters use network objects to view logic status, speed feedback and monitor parameter values, and to send logic control, speed reference and change parameter values. The following objects are supported by the adapter:

- Analog Input (AI)
- Analog Output (AO)
- Analog Value (AV)
- Binary Input (BI)
- Binary Output (BO)
- Binary Value (BV)



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Speed Reference, Logic Status/Speed Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



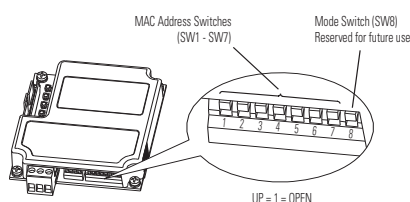
PARAMETERS

No.	Name	Description
01	Reset Module	Resets the adapter or sets the adapter parameters to factory default.
02	Comm Loss Action	Sets the action that the adapter and drive will take if the adapter detects a network failure.
03	Comm Loss Time	Sets the communication loss timeout period (in seconds).
04	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 02 – [Comm Loss Action] is set to "Send Flt Cfg" and the adapter times out.
05	Flt Cfg Ref	Sets the baud rate (kilobits per second) at which the adapter communicates.
06	Baud Rate Cfg	Displays the baud rate (kilobits per second) actually used by the adapter.
07	Baud Rate Act	Displays the actual address selected by the MAC address switches SW1 – SW7 on the adapter.
08	MAC Address	Sets the maximum MAC address for any device in the BACnet MS/TP token ring.
09	Max Master	Sets the maximum number of messages that the adapter can transmit while it owns the token.
10	Max Info Frames	Sets the device instance number used by the adapter.
11	Device Instance	

SPECIFICATIONS

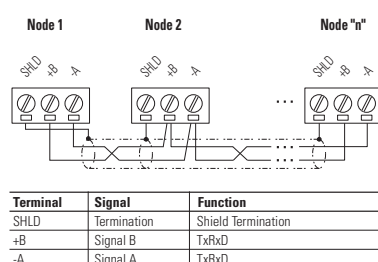
Communications	Network	Protocol	BACnet MS/TP
	Drive	Data Rates	9600, 19200, 38400 or 76800 bps
Electrical	Consumption	Protocol	DPI
		Data Rates	125 or 500 Kbps
Regulatory		Drive (DPI)	150 mA at 5 VDC
		Network	None
		BACnet	BTL (BACnet Testing Laboratories) approval pending
		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

MAC ADDRESS SWITCHES



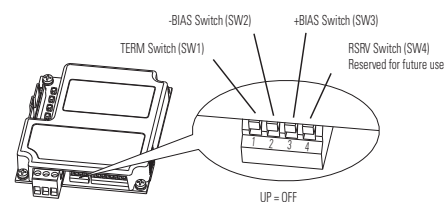
Switches	Description	Default
SW1	Least Significant Bit (LSB) of MAC Address	0
SW2	Bit 1 of MAC Address	0
SW3	Bit 2 of MAC Address	0
SW4	Bit 3 of MAC Address	0
SW5	Bit 4 of MAC Address	0
SW6	Bit 4 of MAC Address	0
SW7	Most Significant Bit (MSB) of MAC Address	0
SW8	Mode (reserved for future use)	—

WIRING CONNECTIONS



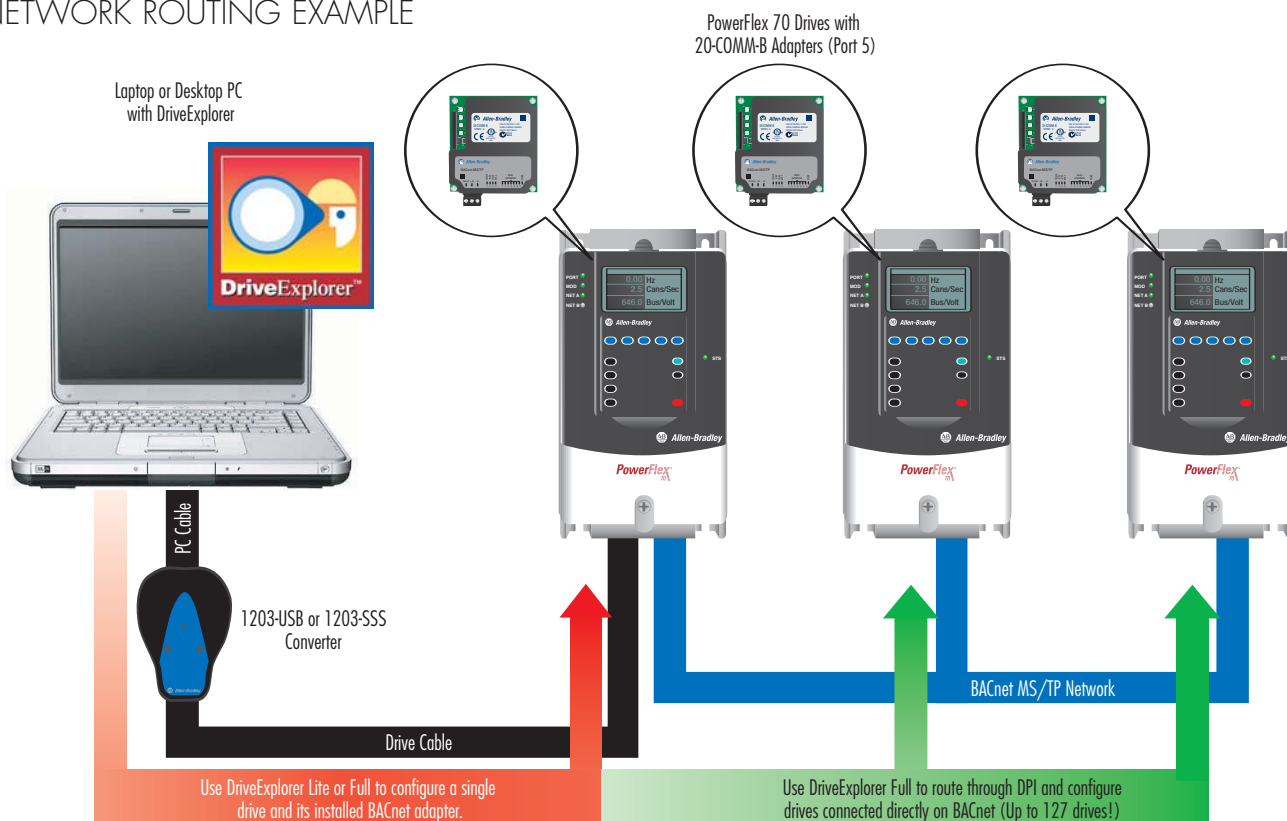
Terminal	Signal	Function
SHLD	Termination	Shield Termination
+B	Signal B	Tx/Rx
-A	Signal A	Tx/Rx

TERMINATION/BIAS SWITCHES



Switches	Description	Default
SW1	Turns on/off the termination resistor	Up (Off)
SW2	Turns on/off the -bias resistor	Up (Off)
SW3	Turns on/off the +bias resistor	Up (Off)
SW4	Reserved (not used)	—

NETWORK ROUTING EXAMPLE



PRODUCT PROFILE

20-COMM-C ControlNet™ COAX ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-C ControlNet coax adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a ControlNet network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address. Alternatively, the switches can be disabled, allowing the node address to be set using a configuration parameter.

Redundancy – The adapter provides a redundant media connection for improved media reliability. The adapter also supports multicast and redundant owner/hot backup.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over ControlNet to access other Allen-Bradley drives. This eliminates the need for a separate network tap and interface.

I/O Messaging (Scheduled) – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks – read and write up to 8 parameters

Explicit Messaging (Unscheduled) – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading/writing of parameters, etc. in the drive and any connected DPI peripheral(s).



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	CN Addr Cfg	Configures the ControlNet node address if the Node Address Switches are set to "00."
04	CN Addr Act	Displays the ControlNet node address actually used by the adapter.
05	CN Rate Cfg	Configures the ControlNet data rate (megabits per second) at which the adapter communicates.
06	CN Rate Act	Displays the ControlNet data rate (megabits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or set defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	CN Active Cfg	Displays the source from which the adapter node address is taken.
13	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
14	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
15	Flt Cfg Logic	Sets the data that is sent to the drive if any of the following is true: <ul style="list-style-type: none"> Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. Parameter 11 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle.
16	Flt Cfg Ref	
17	Flt Cfg A1	
18	Flt Cfg A2	
19	Flt Cfg B1	
20	Flt Cfg B2	
21	Flt Cfg C1	
22	Flt Cfg C2	
23	Flt Cfg D1	
24	Flt Cfg D2	
25	M-S Input	Selects the data produced by the scanner and consumed by the adapter.
26	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
27	Ref Adjust	Sets the percent scale factor for the Reference from the network.

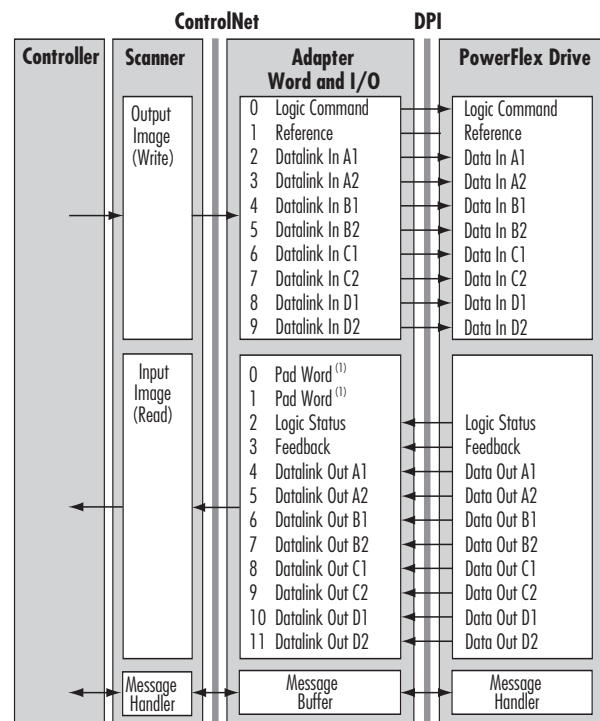
EDS FILES

EDS files can be created on-line using RSNetWorx for ControlNet or downloaded from: <http://www.ab.com/drives/eds.html>

SPECIFICATIONS

Communications	Network	Protocol	ControlNet
		Data Rate	5 Mbps
	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive (DPI)	275 mA at 5 VDC
		Network	None
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE



PRODUCT PROFILE

20-COMM-D DeviceNet™ ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-D DeviceNet adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a DeviceNet network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has configuration switches for setting the node address and network data rate. Alternatively, the switches can be disabled, allowing these settings to be configured using parameters.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over DeviceNet to access other Allen-Bradley drives. This eliminates the need for a separate network connection and interface.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
 - Logic Status/Feedback
 - Datalinks - read and write up to 8 parameters
- Polled, Change-of-State (COS) and Cyclic I/O methods are supported.

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading/writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

UnConnected Message Manager (UCMM) Support – The adapter supports DeviceNet Group 3 services, which allows the adapter to speak for itself (a scanner is not required to 'proxy' for the adapter). This allows a software tool, PanelView, another 20-COMM-D, etc. to communicate directly with the adapter, without burdening the scanner and affecting throughput.

Peer-to-Peer Capability – Allows a PowerFlex drive to operate as a "master" and communicate with other PowerFlex 70, 700,



700H and 700S AC drives operating as "followers". The "master" can send control and speed reference data along with up to two parameter values.

Automatic Device Replacement (ADR) Support – Allows a scanner to upload and store the adapter and drive configuration settings. Upon replacing a faulty drive with a new unit, the scanner can automatically download the configuration data and set the node address.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

DeviceNet
CONFIDENCE TESTED

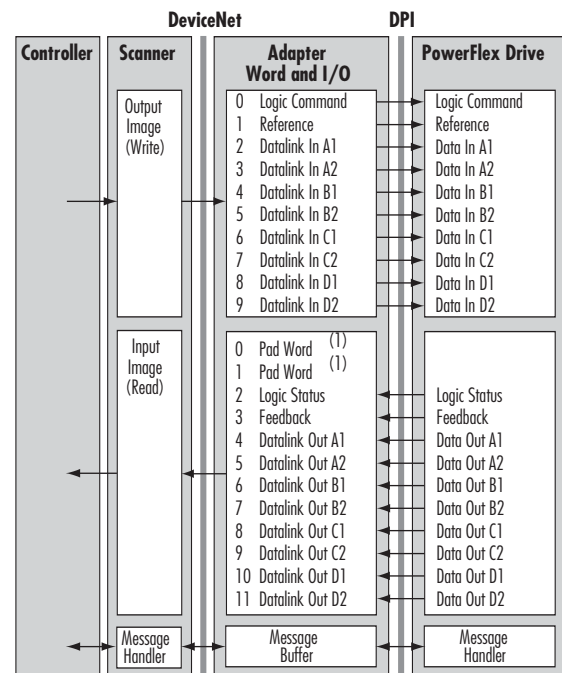
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	DN Addr Cfg	Configures the DeviceNet node address if the Data Rate switch is set to "PGM" (Program).
04	DN Addr Act	Displays the DeviceNet node address actually used by the adapter.
05	DN Rate Cfg	Configures the DeviceNet data rate if the data rate switch is set to "PGM" (Program).
06	DN Rate Act	Displays the DeviceNet data rate actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or set defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	DN Active Cfg	Displays the source from which the adapter node address and data rate are taken.
13	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
14	DPI I/O Act	Displays the I/O that the adapter is actively transmitting.
15	Flt Cfg Logic	Sets the data that is sent to the drive if any of the following is true:
16	Flt Cfg Ref	<ul style="list-style-type: none"> Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
17	Flt Cfg A1 In	
18	Flt Cfg A2 In	<ul style="list-style-type: none"> Parameter 11 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle.
19	Flt Cfg B1 In	
20	Flt Cfg B2 In	<ul style="list-style-type: none"> Parameter 34 - [Peer Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
21	Flt Cfg C1 In	
22	Flt Cfg C2 In	
23	Flt Cfg D1 In	
24	Flt Cfg D2 In	
25	M-S Input	Selects the data produced by the scanner and consumed by the adapter.
26	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
27	COS Status Mask	Configures the mask for the 16-bit Logic Status word. If a bit is not masked and it changes, it is reported as a change in the Change of State operation.
28	COS Fdbk Change	Configures the hysteresis band to determine how much the Feedback word can change before it is reported as a change in the Change of State operation.
29	COS/Cyc Interval	Displays the amount of time that a scanner will wait to check for data in the adapter.
30	Peer A Input	
31	Peer B Input	Configures the destination in the drive of the Peer I/O Input.
32	Peer Cmd Mask	Configures the mask for the Logic Command word when it is received through peer input.
33	Peer Ref Adjust	Scales the Reference received from a peer.
34	Peer Flt Action	Sets the action that the adapter and drive take if the adapter detects that communications with a peer have been disrupted.
35	Peer Node to Inp	Configures the node address of the node producing the peer I/O.
36	Peer Inp Timeout	Configures the time-out for a Change of State peer-to-peer connection.
37	Peer Inp Enable	Determines if Peer I/O input is on or off.
38	Peer Inp Status	Displays the status of the consumed peer input connection.
39	Peer A Output	Selects the source of the Peer I/O output data.
40	Peer B Output	The adapter transmits this data to the network.
41	Peer Out Enable	Determines if Peer I/O output is on or off.
42	Peer Out Time	Configures the minimum time that an adapter will wait when transmitting data to a peer.
43	Peer Out Skip	Configures the maximum time that an adapter will wait when transmitting data to a peer.

SPECIFICATIONS

Communications	Network	Protocol	DeviceNet
		Data Rates	125, 250, and 500 Kbps
	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive (DPI)	150 mA at 5 VDC
		Network	60 mA at 24 VDC
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE



EDS FILES

EDS files can be created on-line using RSNetWorx for DeviceNet or downloaded from: <http://www.ab.com/drives/eds.html>

PRODUCT PROFILE

20-COMM-E ETHERNET/IP™ ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-E EtherNet/IP adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over an EtherNet/IP network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over EtherNet/IP to access other Allen-Bradley drives. This eliminates the need for a separate network connection and interface.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks – read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading/writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

Web Interface – Use a web browser such as Microsoft® Internet Explorer™ to access the drive over the Intranet or Internet.

- TCP/IP Configuration - View TCP/IP configuration data and Ethernet diagnostic information.
- Email Notification - Configure email notification if a specific fault or alarm occurs, if any fault or alarm occurs, or if the drive is reset.
- DPI Backplane Browse - View every DPI device, including the drive and connected peripherals. Provides general device information, diagnostics, events and alarm information.
- Online User Manuals – Link to view the user manual online over the Internet.
- Software Tools Web Site – Link to the DriveExplorer and DriveExecutive Internet web sites.
- Launch Drive Software Tools – Directly launch DriveExplorer or DriveExecutive software already on your PC, and have the tool automatically connect to the drive.



Peer-to-Peer Capability - Allows a PowerFlex drive to operate as a "master" and communicate with other PowerFlex 70, 700, 700H and 700S AC drives operating as "followers". The "master" can send control and speed reference data along with up to two parameter values.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

EtherNet/IP
conformance tested

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	BOOTP	Enables or disables using a BOOTP server to set the IP address, subnet mask, and gateway address.
04	IP Addr Cfg 1	Sets the respective bytes in the IP address, where the represented address is: Cfg1.Cfg2.Cfg3.Cfg4
05	IP Addr Cfg 2	
06	IP Addr Cfg 3	
07	IP Addr Cfg 4	
08	Subnet Cfg 1	Sets the bytes of the subnet mask, where the represented mask is: Cfg1.Cfg2.Cfg3.Cfg4
09	Subnet Cfg 2	
10	Subnet Cfg 3	
11	Subnet Cfg 4	
12	Gateway Cfg 1	Sets the bytes of the gateway address, where the represented address is: Cfg1.Cfg2.Cfg3.Cfg4
13	Gateway Cfg 2	
14	Gateway Cfg 3	
15	Gateway Cfg 4	
16	EN Rate Cfg	Configures the network data rate at which the adapter communicates.
17	EN Rate Act	Displays the data rate actually used by the adapter.
18	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
19	Datalink Size	Displays the size of each Datalink word.
20	Reset Module	Used to reset the adapter or set defaults.
21	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
22	Idle Flt Action	Sets the action that the adapter and drive take if the adapter detects that the scanner is idle.
23	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
24	DPI I/O Act	Displays the I/O that the adapter is actively transmitting.
25	Flt Cfg Logic	Sets the Logic Command data that is sent to the drive if any of the following is true: <ul style="list-style-type: none"> Parameter 21 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. Parameter 22 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle. Parameter 41 - [Peer Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
26	Flt Cfg Ref	
27	Flt Cfg A1 In	
28	Flt Cfg A2 In	
29	Flt Cfg B1 In	
30	Flt Cfg B2 In	
31	Flt Cfg C1 In	
32	Flt Cfg C2 In	
33	Flt Cfg D1 In	
34	Flt Cfg D2 In	
35	M-S Input	Selects the data produced by the scanner and consumed by the adapter.
36	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
37	Ref Adjust	Sets the percent scale factor for the Reference from the network.
38	Peer A Input	Configures the destination in the drive of the Peer I/O input.
39	Peer B Input	
40	Peer Cmd Mask	Configures the mask for the Logic Command word when it is received through peer input.

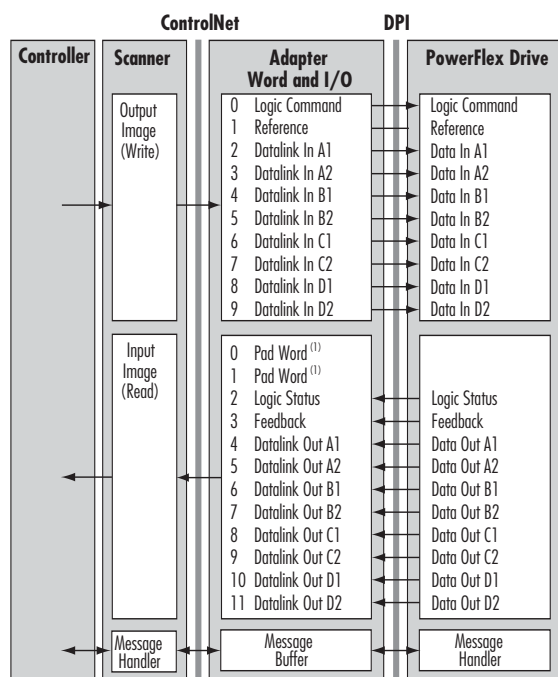
PARAMETERS

No.	Name	Description
41	Peer Flt Action	Sets the action that the adapter and drive take if the adapter detects that the Ethernet/IP communications with a peer have been disrupted.
42	Peer Inp Addr 1	Sets the bytes in the IP address (Addr1.Addr2.Addr3.Addr4) that specifies the device from which the adapter receives (consumes) Peer I/O data.
43	Peer Inp Addr 2	
44	Peer Inp Addr 3	
45	Peer Inp Addr 4	
46	Peer Inp Timeout	Configures the time-out for a peer connection.
47	Peer Inp Enable	Determines if Peer I/O input is on or off.
48	Peer Inp Status	Displays the status of the consumed peer input connection.
49	Peer A Output	Selects the source of the Peer I/O output data. The adapter transmits this data to the network.
50	Peer B Output	
51	Peer Out Enable	Determines if Peer I/O output is on or off.
52	Peer Out Time	Determines the minimum time that an adapter will wait when transmitting data to a peer.
53	Peer Out Skip	Determines the maximum time that an adapter will wait when transmitting data to a peer.
54	Access Control	Determines the access to the Web interface and Web-configurable features such as e-mail notification.
55	Web Enable	Only available for Series B (v3.xxx or higher) adapters. Displays the setting of the Web Pages Switch (SW2) on the adapter when the adapter was last reset.
56	Web Features	Only available for Series B (v3.xxx or higher) adapters. Sets access to the Web interface and Web-configurable features.

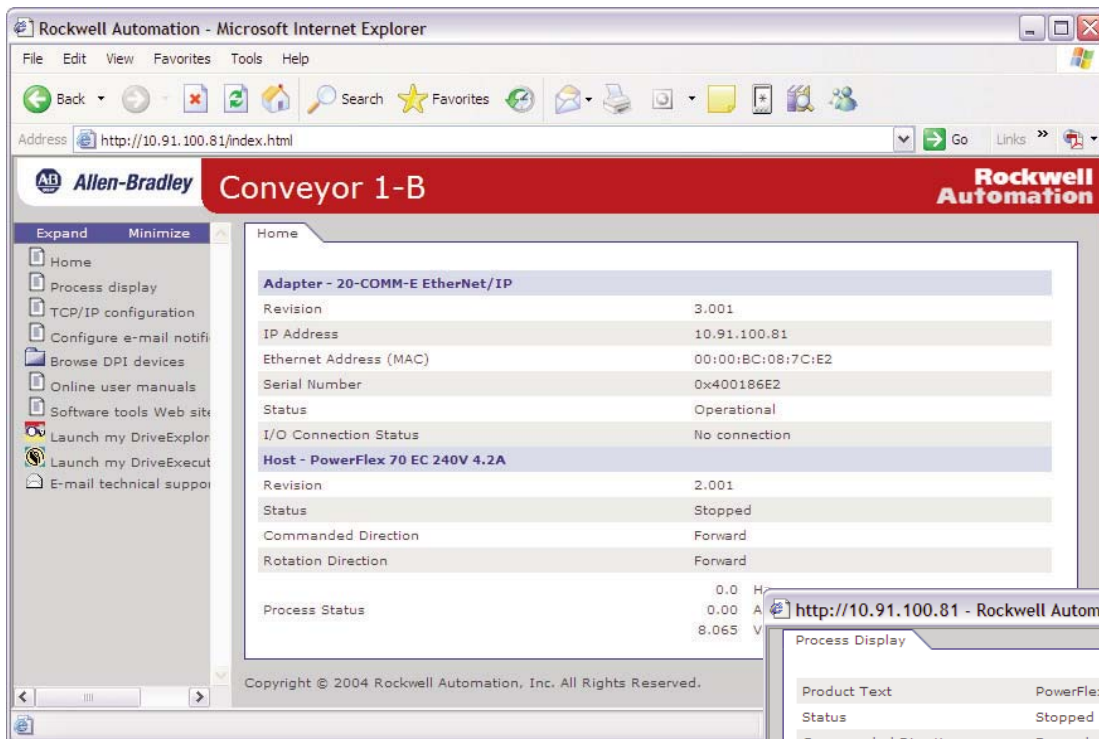
SPECIFICATIONS

Communications	Network	Protocol	EtherNet/IP
		Data Rates	10/100 Mbps, Half/Full Duplex
	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive	370 mA at 5 VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

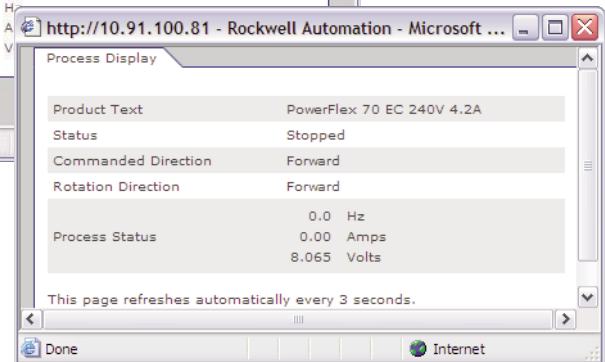
EXAMPLE I/O IMAGE



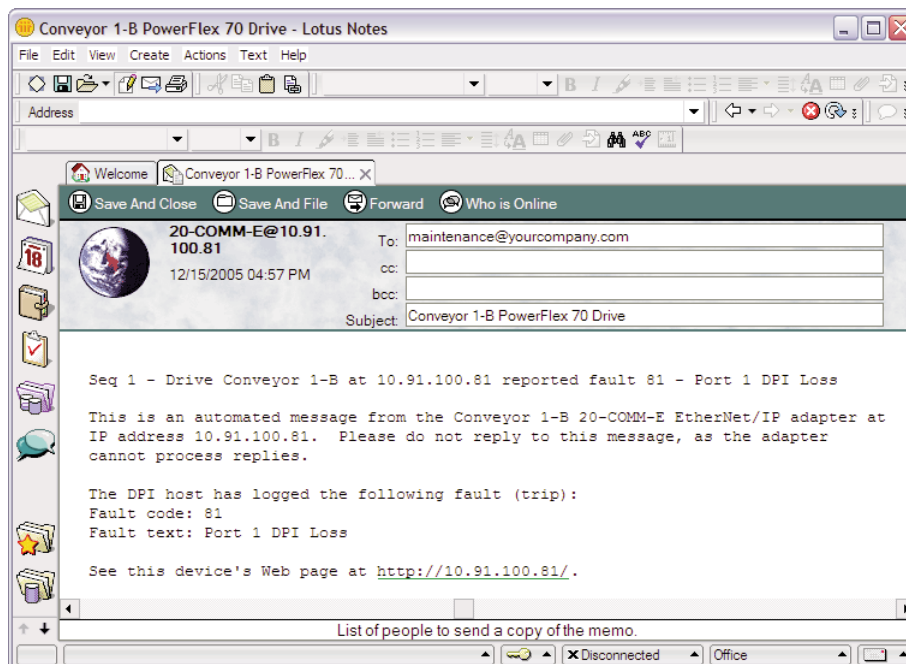
MAIN WEB PAGE



AUTO-REFRESH
PROCESS DISPLAY



EXAMPLE FAULT NOTIFICATION EMAIL



PRODUCT PROFILE

20-COMM-H RS485 HVAC ADAPTER

6 / 2011
www.klinkmann.com

KLINKMANN

PowerFlex®
Communications

The PowerFlex® 20-COMM-H RS485 HVAC adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over Modbus RTU, Johnson Controls Metasys N2, and Siemens Building Technologies P1 networks. For a list of compatible products, refer to the "Compatible Products" table on the next page.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address (01-99) and protocol (RTU/N2/P1). Alternatively, the switches can be disabled (00 setting), allowing the node address to be set using a configuration parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

Three HVAC Protocols – Three HVAC protocols are provided in one adapter:

Modbus RTU Protocol –

- Utilizes familiar I/O control bits and words (Logic Command/Reference, Logic Status/Feedback and Datalinks A-D)
- Includes 8 configurable User Input words and 8 configurable User Output words
- Drive parameters are directly mapped to Modbus addresses for complete parameter read/write access
- Supports Modbus broadcast address "0" for global Start, Stop, Reference, etc. Individual nodes can scale their Reference (0-200%) from the global Reference command

Metasys N2 Protocol –

- Utilizes familiar I/O control bits and words (Logic Command/Reference, Logic Status/Feedback and Datalinks A-B)
- Includes 4 configurable User Input words and 2 configurable User Output words

Siemens P1 Protocol –

- Siemens Application Note 2718
- Utilizes familiar I/O control words (Logic Command/Reference, Logic Status/Feedback and Datalinks A-D.) in addition to common Siemens network points
- Includes 1 configurable User Input word and 1 configurable User Output word



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

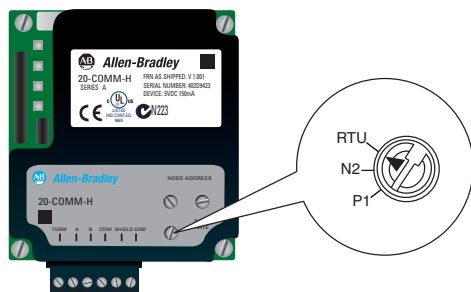
Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	Net Addr Cfg	Configures the network node address if the network switches on the adapter are set to "00."
04	Net Addr Act	Displays the network address actually used by the adapter.
05	Net Rate Cfg	Configures the network data rate at which the adapter communicates.
06	Net Rate Act	Displays the network data rate actually used by the adapter.
07	Net Parity Cfg	Configures the network parity.
08	Net Parity Act	Displays the actual network parity used by the adapter.
09	Stop Bits Act	Displays the actual number of stop bits used by the selected protocol.
10	Net Chksum Type	Displays the type of checksum used by the selected protocol.
11	Network Timeout	Configures the time in seconds to be used to detect network communication loss.
12	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
13	Datalink Size	Displays the size of each Datalink word.
14	Reset Module	Used to reset the adapter or set defaults.
15	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
16	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
17	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
18	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 15 - [Comm Flt Action] is set to "Send Flt Cfg" and the adapter times out.
19	Flt Cfg Ref	
20	Flt Cfg A1 In	
21	Flt Cfg A2 In	
22	Flt Cfg B1 In	
23	Flt Cfg B2 In	
24	Flt Cfg C1 In	
25	Flt Cfg C2 In	
26	Flt Cfg D1 In	
27	Flt Cfg D2 In	
28	Clear Counters	Clears the network diagnostic counters.
29	N2 Ref Scale	Only used if Metasys N2 protocol is selected. Determines the engineering unit sent over DPI for the Reference when 100% is set for AO#2.
30	Stop Bits Cfg	Sets the number of stop bits used by the adapter when the network protocol switch is set to "Modbus RTU".
31	RTU Ref. Adjust	Sets the percent scale factor for the Reference from the network when the network protocol switch is set to "Modbus RTU," and broadcast messages (Modbus address "0") are sent.

PROTOCOL SELECTION



Setting	Description
RTU (Default)	Modbus RTU
N2	Metasys N2
P1	Siemens Building Technologies P1 FLN

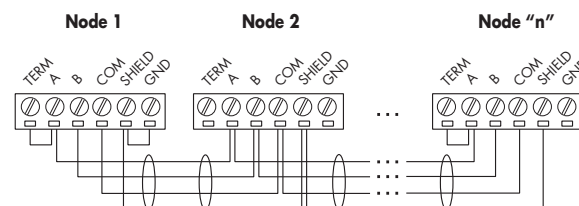
SPECIFICATIONS

Communications	Network	Protocol	Modbus RTU, Metasys N2 or Siemens P1 FLN
		Data Rates	RTU: 4800 - 38400 bps N2: 9600 bps P1: 4800 or 9600 bps
Electrical	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Regulatory Compliance	Consumption	Drive	150 mA at 5 VDC
		Network	N/A
		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

CONNECTOR TERMINALS

Terminal	Signal	Function
TERM	Termination	Signal RC Termination
A	Signal A	TxRxDx -
B	Signal B	TxRxDx +
COM	Common	Signal Common
SHIELD	Shield	Shield RC Termination
GND	Ground	Shield Ground Termination

WIRING DIAGRAM



SUPPORTED MODBUS RTU COMMANDS

Function Code	Description
01	Read Coil Status
02	Read Input Status
03	Read Holding Registers
04	Read Input Registers
05	Force Single Coil
06	Write Single Register
08	Diagnostics/Loop-back
16	Write Multiple Registers
23	Read/Write 4x Registers

COMPATIBLE PRODUCTS

Network Protocol	Compatible Products						
	70 (SC or EC)	700 (SC)	700 (VC)	700H	700S	7000	SMC Flex
Modbus RTU	X	X	X	X	X	X	X
Metasys N2	X	X		X		X	
P1 FLN	X	X		X		X	

PRODUCT PROFILE

20-COMM-I INTERBUS™ ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-I Interbus adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over an Interbus network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 7 parameters

Up to 9 words of input data and 9 words of output data can be mapped to the network.

PCP Communications – PCP messages are used for explicit messaging, which involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports:

- Reading/writing of drive parameters
- Reading the drive fault queue
- Reading/writing of adapter parameters
- Reading of adapter events

Compliance Tested – Certificate No. 373 issued by INTERBUS Club Deutschland E.V.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted



Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	Ref/Feedback Size	Displays the size of the Reference/Feedback words.
04	Datalink Size	Displays the size of each Datalink word.
05	Reset Module	Used to reset the adapter or set defaults.
06	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
07	Reserved	
08	DPI I/O Config	Selects the I/O that is transferred through the adapter.
09	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
10	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 06 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted.
11	Flt Cfg Ref	
12	Flt Cfg A1	
13	Flt Cfg A2	
14	Flt Cfg B1	
15	Flt Cfg B2	
16	Flt Cfg C1	
17	Flt Cfg C2	
18	Flt Cfg D1	
19	Flt Cfg D2	
20	PIDD W0 Cfg	Configured Process Input Data Description for Word 0 (default is Logic Status).
21	PIDD W0 Actual	Actual Process Input Data Description for Word 0.
22	PIDD W1 Cfg	Configured Process Input Data Description for Word 1 (default is Feedback).
23	PIDD W1 Actual	Actual Process Input Data Description for Word 1.
24	PIDD W2 Cfg	Configured Process Input Data Description for Word 2.
25	PIDD W2 Actual	Actual Process Input Data Description for Word 2.
26	PIDD W3 Cfg	Configured Process Input Data Description for Word 3.
27	PIDD W3 Actual	Actual Process Input Data Description for Word 3.
28	PIDD W4 Cfg	Configured Process Input Data Description for Word 4.
29	PIDD W4 Actual	Actual Process Input Data Description for Word 4.
30	PIDD W5 Cfg	Configured Process Input Data Description for Word 5.
31	PIDD W5 Actual	Actual Process Input Data Description for Word 5.
32	PIDD W6 Cfg	Configured Process Input Data Description for Word 6.
33	PIDD W6 Actual	Actual Process Input Data Description for Word 6.
34	PIDD W7 Cfg	Configured Process Input Data Description for Word 7.
35	PIDD W7 Actual	Actual Process Input Data Description for Word 7.
36	PIDD W8 Cfg	Configured Process Input Data Description for Word 8.
37	PIDD W8 Actual	Actual Process Input Data Description for Word 8.
38	PODD W0 Cfg	Configured Process Output Data Description for Word 0 (default is Logic Command).
39	PODD W0 Actual	Actual Process Output Data Description for Word 0.
40	PODD W1 Cfg	Configured Process Output Data Description for Word 1 (default is Reference).
41	PODD W1 Actual	Actual Process Output Data Description for Word 1.
42	PODD W2 Cfg	Configured Process Output Data Description for Word 2.
43	PODD W2 Actual	Actual Process Output Data Description for Word 2.
44	PODD W3 Cfg	Configured Process Output Data Description for Word 3.
45	PODD W3 Actual	Actual Process Output Data Description for Word 3.

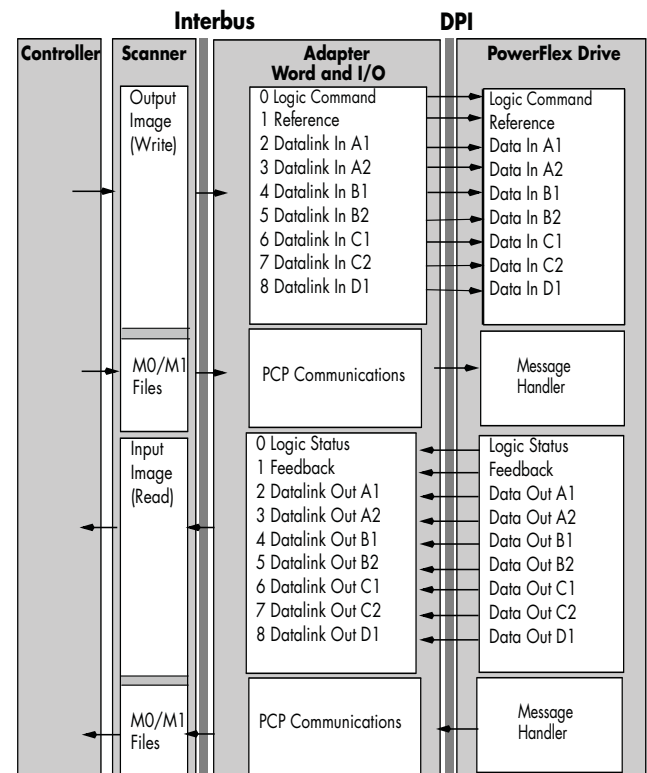
PARAMETERS

No.	Name	Description
46	PODD W4 Cfg	Configured Process Output Data Description for Word 4.
47	PODD W4 Actual	Actual Process Output Data Description for Word 4.
48	PODD W5 Cfg	Configured Process Output Data Description for Word 5.
49	PODD W5 Actual	Actual Process Output Data Description for Word 5.
50	PODD W6 Cfg	Configured Process Output Data Description for Word 6.
51	PODD W6 Actual	Actual Process Output Data Description for Word 6.
52	PODD W7 Cfg	Configured Process Output Data Description for Word 7.
53	PODD W7 Actual	Actual Process Output Data Description for Word 7.
54	PODD W8 Cfg	Configured Process Output Data Description for Word 8.
55	PODD W8 Actual	Actual Process Output Data Description for Word 8.
56	PCP Comm Cfg	Enables or disables PCP communications.
57	PCP Comm Act	Displays actual PCP Configuration status.

SPECIFICATIONS

Communications	Network	Protocol	Interbus
	Drive	Data Rate	500 Kbps
Electrical	Consumption	Protocol	DPI
		Data Rates	125 or 500 Kbps
Regulatory Compliance		Drive (DPI)	450 mA at 5 VDC
		Network	N/A
		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

EXAMPLE I/O IMAGE



PRODUCT PROFILE

20-COMM-K CANopen® ADAPTER

PowerFlex®
Communications

The DPI CANopen adapter provides a direct connection on CANopen for PowerFlex 70 (SC or EC), 700 (SC or VC), 700H, and 700S drives. CANopen is based on the same CAN bus technology as DeviceNet™, but has a different hardware and electrical structure, so it is not compatible. CANopen utilizes baud rates up to 1 Mbps, and works as a Producer – Consumer connection.

The CANopen adapter uses the same logic control structure as all other PowerFlex communication adapters, so all fundamentals of Datalinks, safe-state data, flash upgradeability are supported. To maintain this functionality, the CANopen adapter conforms to the CANopen DSP 301 profile. It is important to check that this generic profile is acceptable to the customer before applying to their application.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has configuration switches for setting the node address and network data rate. Alternatively, the switches can be disabled, allowing these settings to be configured using parameters.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 8 parameters



Compliance Tested – Certificate No. CiA200407-301V402/20-0036 issued by CAN in Automation GmbH.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

CANopen

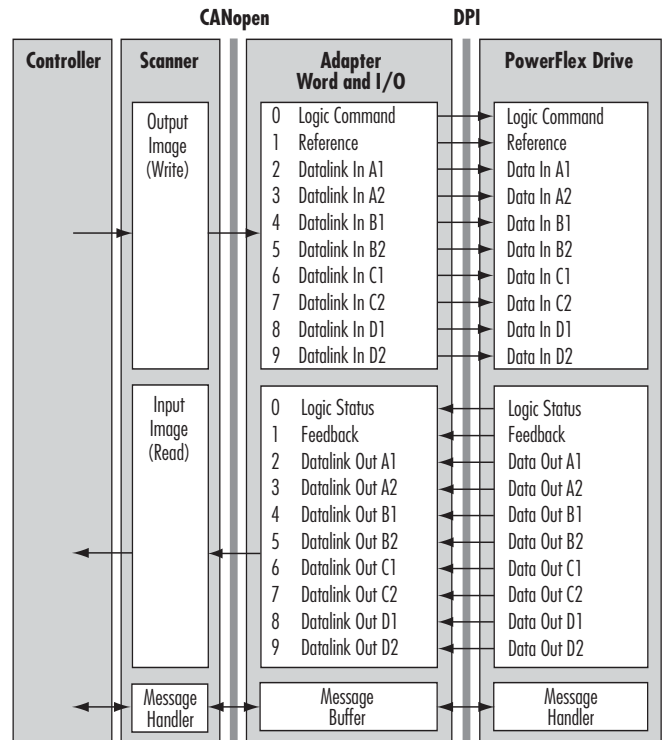
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port on the host drive which the adapter is connected.
02	DPI Data Rate	Displays the data rate used by the DPI drive. This data rate is set in the drive, and the adapter autobauds to it.
03	COPN Addr Cfg	Configures the CANopen node address if the Data Rate switch is set to "PGM" (Program).
04	COPN Addr Actual	Displays the CANopen node address actually used by the adapter.
05	COPN Rate Cfg	Configures the CANopen data rate if the data rate switch is set to "PGM" (Program).
06	COPN Rate Actual	Displays the CANopen data rate actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Speed Reference/Feedback words which is determined by the drive. The adapter automatically uses the correct size.
08	Datalink Size	Displays the size of each Datalink word which is determined by the drive. The adapter automatically uses the correct size.
09	Reset Module	Resets the adapter or sets the adapter parameters to factory default.
10	Comm Flt Action	Sets the action that the adapter will take if it detects that communications.
11	Idle Flt Action	Sets the action that the adapter will take if it detects that the scanner is idle.
12	DPI I/O Config	Selects the I/O that is transferred through the adapter.
13	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
14	Flt Cfg Logic	Sets the data that is sent to the drive if any of the following is true: <ul style="list-style-type: none"> Parameter 09 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted. Parameter 10 - [Idle Flt Action] is set to Send Flt Cfg and the scanner is put into Program mode.
15	Flt Cfg Ref	
16	Flt Cfg A1 In	
17	Flt Cfg A2 In	
18	Flt Cfg B1 In	
19	Flt Cfg B2 In	
20	Flt Cfg C1 In	
21	Flt Cfg C2 In	
22	Flt Cfg D1 In	
23	Flt Cfg D2 In	
24	PDO1 Trigger	Sets the transmission type for TPDO1 (Status/Feedback) if transmission type 0 or 254 is configured.
25	COS Status Mask	Configures the mask for the 16-bit Logic Status word. If a bit is not masked and it changes, it is reported as a change in the Change of State operation.
26	COS Fdbk Change	Configures the hysteresis band to determine how much the Feedback word can change before it is reported as a change in the Change of State operation.
27	Cyc Interval	Time between transfers used for cyclic transmissions if transmission type 0 or 254 is configured and Parameter 24 - [PDO1 Trigger] is set to "1 = Cyclic".

SPECIFICATIONS

Communications	Network	Protocol	CANopen
	Drive	Data Rates	10 Kbps – 1 Mbps
Electrical	Consumption	Protocol	DPI
		Data Rates	125 or 500 Kbps
Regulatory Compliance		Drive (DPI)	500 mA at 5 VDC
		Network	None
		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

EXAMPLE I/O IMAGE



CANopen EDS FILE

The CANopen EDS file is provided on 3.5" disk with the adapter and can be downloaded at: <http://www.ab.com/drives/20-comm/20-comm-k/index.html>

PRODUCT PROFILE

20-COMM-L LonWorks® ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-L LonWorks adapter provides an internal network connection for PowerFlex 70, PowerFlex 700 (standard cassette) and PowerFlex 700H drives. The adapter provides a means to control, configure and collect data over a LonWorks network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

LonMark Functional Profile: “Variable Speed Motor Drive: 6010” Support – The adapter supports the standard functional profile used by the HVAC industry for drives, which provides a common set of system network variables and configuration properties.

Additional “Manufacturer Defined” network variables – Additional “Manufacturer Defined” network variables are also provided:

- Datalinks
- Parameter Read/Write
- Metering
- Configuration

Resource Files – The following resource files are included on 3.5” disk with the adapter:

- XIF file
- Type File (TYP)
- Format File (FMT)
- Language File (ENU)
- Functional Profile Template (FPT)

The resource files can also be downloaded at:
<http://www.ab.com/drives/20-comm/20-comm-1>



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the node is taken offline
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback, Datalink, etc. data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



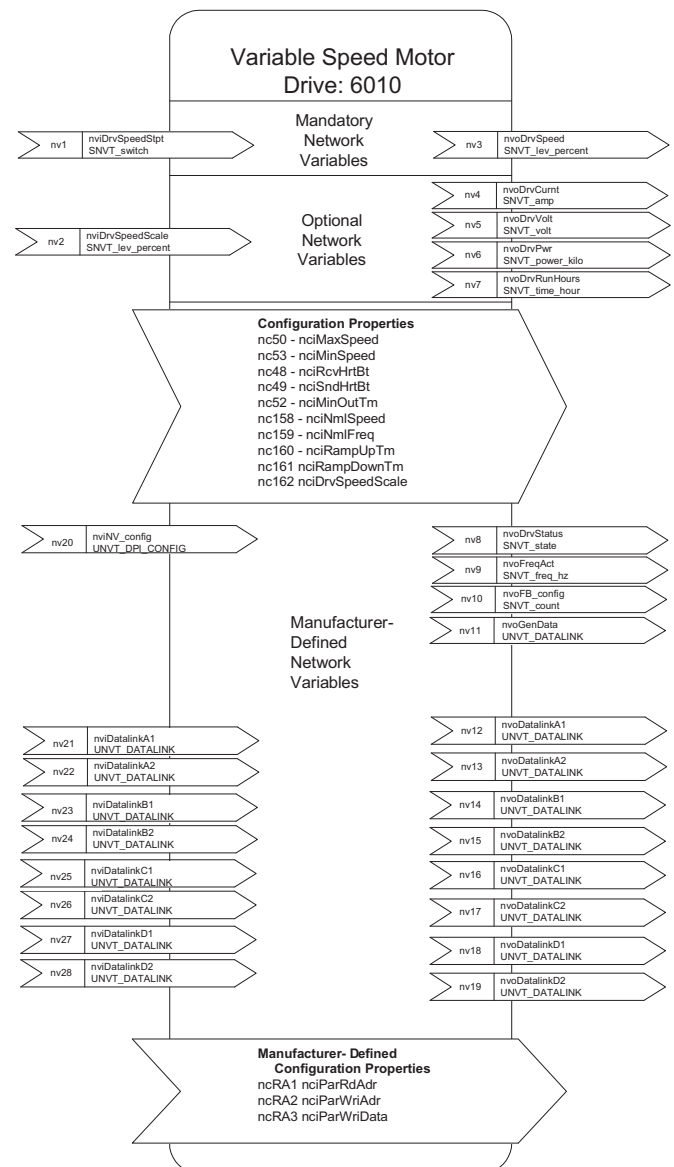
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
04	Datalink Size	Displays the size of each Datalink word.
05	Reset Module	Used to reset the adapter or set defaults.
06	Comm Flt Action	Sets the action that the adapter will take if it detects that network communications have been disrupted.
07	RcvHrtBeat Time	Sets the time used as a Receive Heartbeat timer and is used to trigger the fault action in Parameter 6 - [Comm Flt Action].
08	Idle Flt Action	Sets the action that the adapter will take during offline/disable occurrences.
09	DPI I/O Config	Selects the I/O that is transferred through the adapter.
10	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
11	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 6 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted.
12	Flt Cfg Ref	
13	Flt Cfg A1 In	
14	Flt Cfg A2 In	
15	Flt Cfg B1 In	
16	Flt Cfg B2 In	
17	Flt Cfg C1 In	
18	Flt Cfg C2 In	
19	Flt Cfg D1 In	
20	Flt Cfg D2 In	
21	Send Service Pin	Used to broadcast a LON Service Pin Message from the Neuron Chip.
22	Clear Counters	Clears the network diagnostic counters.
23	DrvSpeedParam	Sets the PowerFlex drive parameter number to be used with nvoDrvSpeed.
24	DrvCurtParam	Sets the PowerFlex drive parameter number to be used with nvoDrvCurt.
25	DrvPwrParam	Sets the PowerFlex drive parameter number to be used with nvoDrvPwr.
26	DrvVoltParam	Sets the PowerFlex drive parameter number to be used with nvoDrvVolt.
27	DrvRunHoursParam	Sets the PowerFlex drive parameter number to be used with nvoDrvRunHours.
28	DrvFreqActParam	Sets the PowerFlex drive parameter number to be used with nvoDrvFreqAct.
29	NmlFreqParam	Sets the PowerFlex drive parameter number to be used with nciNmlFreq.
30	NmlSpeedParam	Sets the PowerFlex drive parameter number to be used with nciNmlSpeed.
31	MaxSpeedParam	Sets the PowerFlex drive parameter number to be used with nciMaxSpeed.
32	MinSpeedParam	Sets the PowerFlex drive parameter number to be used with nciMinSpeed.
33	RampUpTmParam	Sets the PowerFlex drive parameter number to be used with nciRampUpTm.
34	RampDownTmParam	Sets the PowerFlex drive parameter number to be used with nciRampDownTm.

SPECIFICATIONS

Communications	Network	Protocol	LonWorks
	Drive	Protocol	DPI
		Data Rates	78 Kbps
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive (DPI)	200 mA at 5 VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

VARIABLE SPEED MOTOR DRIVE PROFILE



PRODUCT PROFILE

20-COMM-M MODBUS/TCP ADAPTER

The PowerFlex® 20-COMM-M Modbus/TCP adapter provides an internal Modbus/TCP connection for PowerFlex 70 (SC or EC), 700 (SC or VC), 700H, 700S, and 7000 drives, and other DPI-based host devices. The adapter provides a means to control, configure, and collect data over a Modbus/TCP network.

PRODUCT HIGHLIGHTS

Installation – The adapter mounts internal to the drive to save valuable panel space, and is field installable. If an external connection is needed, the adapter can also be installed in a DPI External Communications Kit (20-XCOMM-DC-BASE).

Address Configuration – The adapter's IP address can be configured using software parameters or a BOOTP server.

Supported Data Rates – The adapter can automatically negotiate a baud rate of 10 Mbps or 100 Mbps when connected to a Modbus/TCP network.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over Modbus/TCP to access other Allen-Bradley® drives. This eliminates the need for a separate network connection and interface.

Advanced Built-in Web Interface – Use a web browser such as Microsoft® Internet Explorer™ to access the drive over the Intranet or Internet.

- TCP/IP Configuration - View TCP/IP configuration data and Modbus/TCP diagnostic information.
- Email Notification - Configure email notification if a specific fault or alarm occurs, if any fault or alarm occurs, or if the drive is reset.
- DPI Backplane Browse - View every DPI device, including the drive and connected peripherals. Provides general device information, diagnostics, events, and alarm information.
- Online User Manuals – Link to view the user manual online over the Internet.
- Software Tools Web Site – Link to the DriveExplorer and DriveExecutive Internet web sites.
- Launch Drive Software Tools – Directly launch DriveExplorer or DriveExecutive software already on your PC, and have the tool automatically connect to the drive.



Supported Modbus Function Codes – Unlike most drive communication adapters, Modbus/TCP adapters use Function Codes to view logic status, feedback and parameter values, send logic control, reference, and change parameter values. The following Function Codes are supported by the adapter:

- 01 - Read Coils
- 02 - Read Discrete Inputs
- 03 - Read Holding Registers
- 05 - Write Single Coil
- 06 - Write Single Register
- 15 - Write Multiple Coils
- 16 - Write Multiple Registers
- 23 - Read/Write Multiple Registers
- 43 - Read Device Identification

User Configurable Fault Response – Selects the action that the adapter and drive will take for a Comm Fault Action (network communications have become disrupted) condition

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Status/Feedback, Logic Command/Reference, and Datalink data being transmitted to and from the controller.

Flash Upgradable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

Modbus-IDA
the architecture for distributed automation

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	BOOTP	Enables or disables using a BOOTP server to set the IP address, subnet mask, and gateway address.
04	IP Addr Cfg 1	Sets the respective bytes in the IP address, where the represented address is: Cfg1.Cfg2.Cfg3.Cfg4
05	IP Addr Cfg 2	
06	IP Addr Cfg 3	
07	IP Addr Cfg 4	
08	Subnet Cfg 1	Sets the bytes of the subnet mask, where the represented mask is: Cfg1.Cfg2.Cfg3.Cfg4
09	Subnet Cfg 2	
10	Subnet Cfg 3	
11	Subnet Cfg 4	
12	Gateway Cfg 1	Sets the bytes of the gateway address, where the represented address is: Cfg1.Cfg2.Cfg3.Cfg4
13	Gateway Cfg 2	
14	Gateway Cfg 3	
15	Gateway Cfg 4	
16	EN Rate Cfg	Configures the network data rate at which the adapter communicates.
17	EN Rate Act	Displays the data rate actually used by the adapter.
18	Modbus/TCP Port	Sets the TCP port used to transport Modbus/TCP messages.
19	Msg I/O Timer	Sets the communication loss timeout period in seconds.
20	Ref/Fdbk Size	Displays the size of the Reference/Feedback, which is determined by the drive.
21	Datalink Size	Displays the size of the Datalinks, which is determined by the drive.
22	Reset Module	Used to reset the adapter or set defaults.
23	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
24	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
25	DPI I/O Act	Displays the I/O that the adapter is actively transmitting.
26	Flt Cfg Logic	Sets the Logic Command data that is sent to the drive if Parameter 23 – [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
27	Flt Cfg Ref	
28	Flt Cfg A1 In	
29	Flt Cfg A2 In	
30	Flt Cfg B1 In	
31	Flt Cfg B2 In	
32	Flt Cfg C1 In	
33	Flt Cfg C2 In	
34	Flt Cfg D1 In	
35	Flt Cfg D2 In	
36	Web Enable	Displays the setting of the Web Pages Switch (SW2) on the adapter when the adapter was last reset.
37	Web Features	Sets access to the Web interface and Web-configurable features.

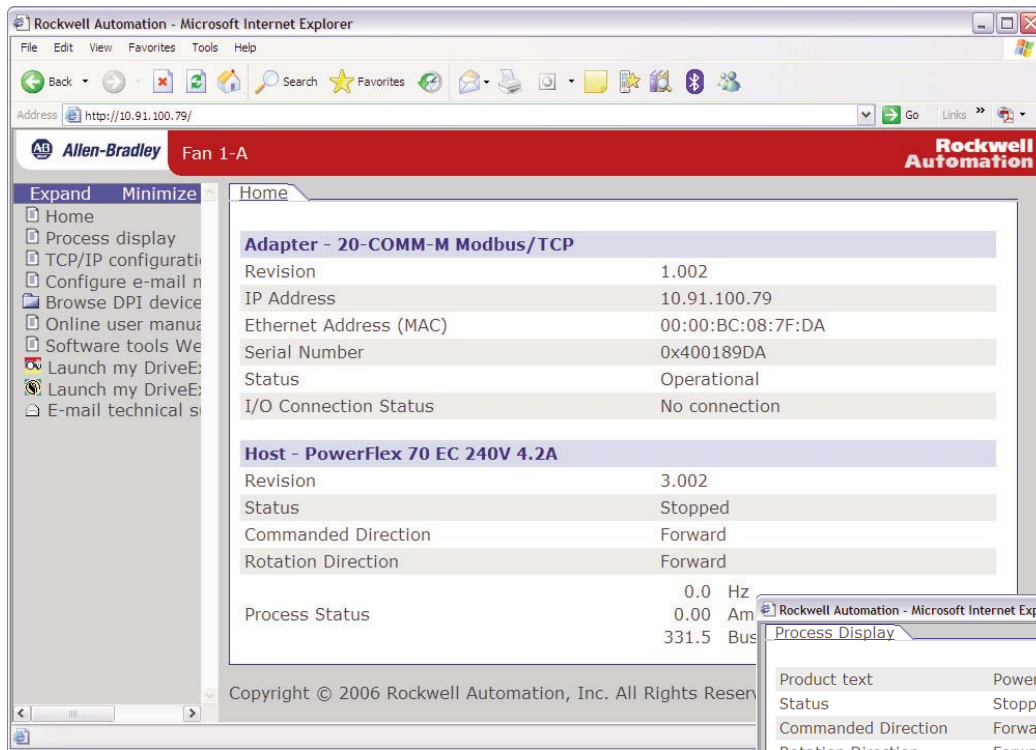
PARAMETERS

No.	Name	Description
38	Indirect Par #1	Sets the Indirect Parameter value used to point to a device (drive or any of its connected peripherals) to read or write values with specific Modbus Function Codes.
39	Indirect Par #2	
40	Indirect Par #3	
41	Indirect Par #4	
42	Indirect Par #5	
43	Indirect Par #6	
44	Indirect Par #7	
45	Indirect Par #8	
46	Indirect Par #9	
47	Indirect Par #10	
48	Indirect Par #11	
49	Indirect Par #12	
50	Indirect Par #13	
51	Indirect Par #14	
52	Indirect Par #15	
53	Indirect Par #16	

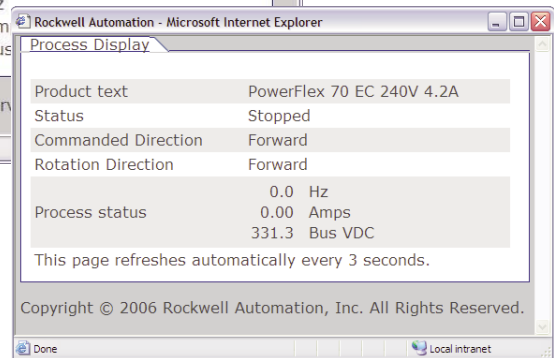
SPECIFICATIONS

Communications	Network	Protocol Data Rates	Modbus/TCP 10/100 Mbps, Half/Full Duplex
	Drive	Protocol Data Rates	DPI 125 or 500 Kbps
Electrical	Consumption	Drive Network	350 mA at 5 VDC N/A
Regulatory Compliance		UL cUL CE CTick	UL508C CAN/CSA C22.2 No. 14-M91 EN50178 and EN61800-3 EN61800-3

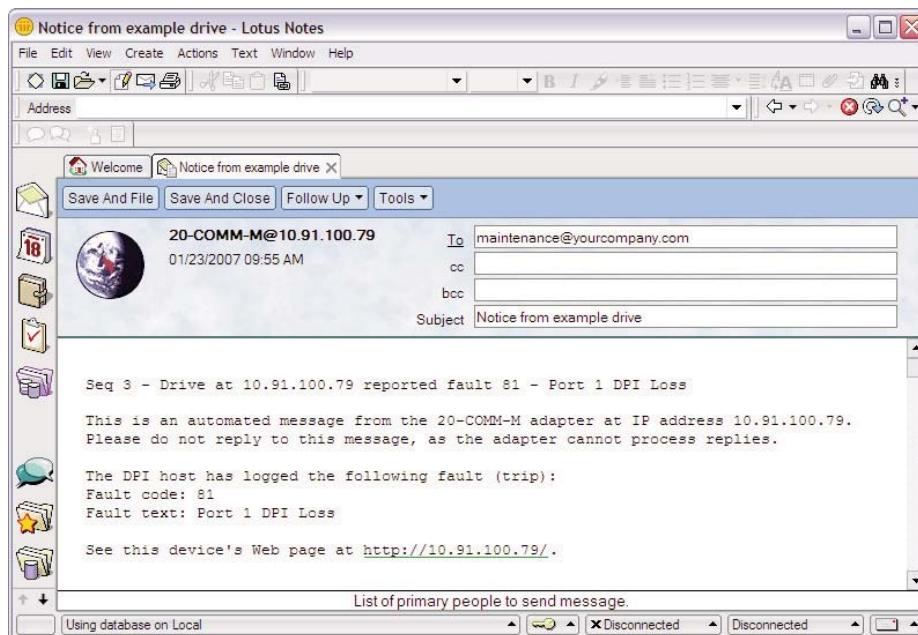
MAIN WEB PAGE



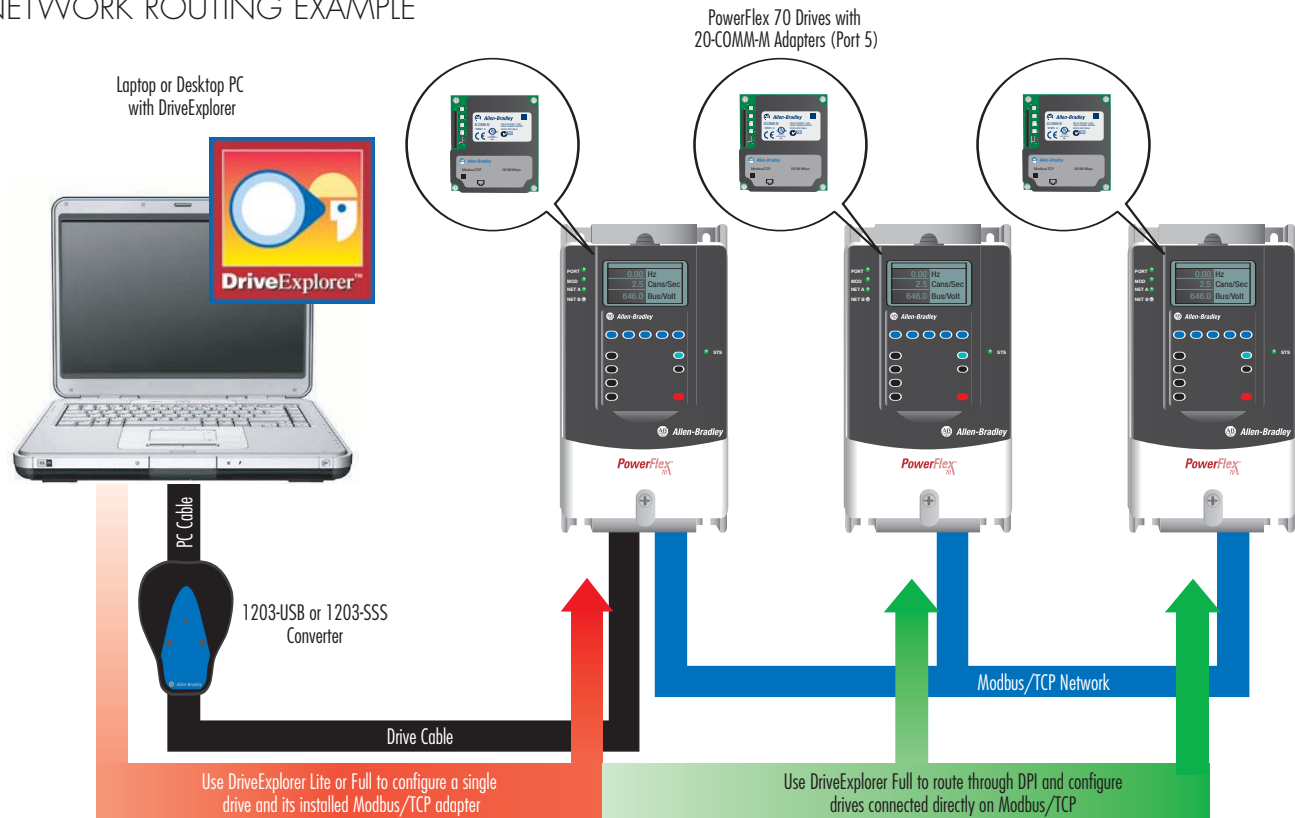
AUTO-REFRESH PROCESS DISPLAY



EXAMPLE FAULT NOTIFICATION EMAIL



NETWORK ROUTING EXAMPLE



PRODUCT PROFILE

20-COMM-P PROFIBUS DP™ ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-P PROFIBUS DP adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a PROFIBUS DP network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address (01-99). Alternatively, the switches can be disabled (00 setting), allowing the node address to be set using a configuration parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.).

The adapter supports:

- Reading/writing of drive parameters
- Reading the drive fault queue
- Reading/writing of adapter or other peripheral parameters

Compliance Tested – Certificate No. Z00652 issued by PROFIBUS Nutzerorganisation E.V.



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command and Reference data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference and Logic Status/Feedback data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



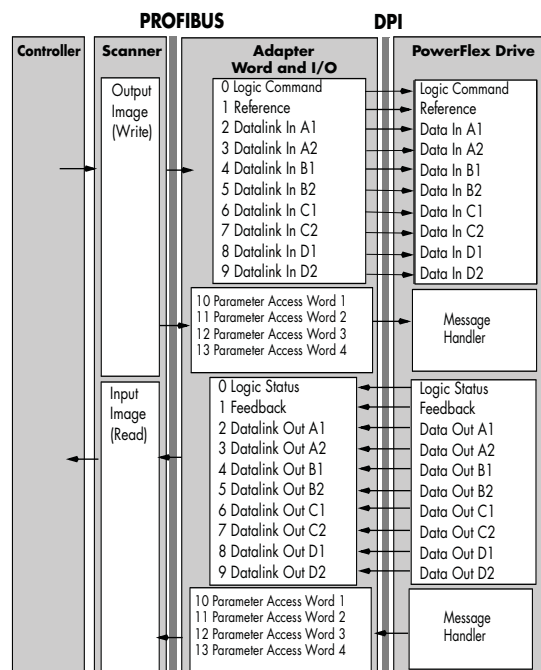
PARAMETERS

No.	Name	Description
01	DPI Port	Port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	P-DP Addr Cfg	Configures the node address to use if the Node address switches are set to "00".
04	P-DP Addr Actual	Displays the node address actually used by the adapter.
05	P-DP Rate Actual	Displays the data rate actually used by the adapter.
06	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
07	Datalink Size	Displays the size of each Datalink word.
08	Reset Module	Used to reset the adapter or set defaults.
09	Comm Flt Action	Sets the action that the adapter will take if it detects that communications have been disrupted.
10	Idle Flt Action	Sets the action that the adapter will take if it detects that the scanner is idle.
11	DPI I/O Config	Selects the I/O that is transferred through the adapter.
12	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
13	Flt Cfg Logic	Sets the data that is sent to the drive if any of the following is true:
14	Flt Cfg Ref	<ul style="list-style-type: none"> Parameter 09 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted.
15	Flt Cfg A1 In	
16	Flt Cfg A2 In	
17	Flt Cfg B1 In	
18	Flt Cfg B2 In	
19	Flt Cfg C1 In	
20	Flt Cfg C2 In	
21	Flt Cfg D1 In	
22	Flt Cfg D2 In	
23	Parameter Mode	Sets the format used when performing explicit messages: <ul style="list-style-type: none"> Par Prot (Parameter Protocol) is used to read or write single parameters. DPI Par Prot is reserved for future use.
24	P-DP State	Displays the state of the PROFIBUS controller.

SPECIFICATIONS

Communications	Network	Protocol	PROFIBUS DP
		Data Rates	9600 bps - 12 Mbps (autobauds)
	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive (DPI)	370 mA at 5 VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

EXAMPLE I/O IMAGE



GSD FILE

The GSD file is provided on 3.5" disk with the adapter and can be downloaded at: <http://www.ab.com/drives/20-comm/20-comm-p/index.html>

PRODUCT PROFILE

20-COMM-Q ControlNet™ FIBER ADAPTER

The PowerFlex® 20-COMM-Q ControlNet coax adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a ControlNet network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address. Alternatively, the switches can be disabled, allowing the node address to be set using a configuration parameter.

Redundancy – The adapter provides a redundant media connection for improved media reliability. The adapter also supports multicast and redundant owner/hot backup.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over ControlNet to access other Allen-Bradley drives. This eliminates the need for a separate network tap and interface.

I/O Messaging (Scheduled) – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging (Unscheduled) – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading/writing of parameters, etc. in the drive and any connected DPI peripheral(s).

PowerFlex®
Communications



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.



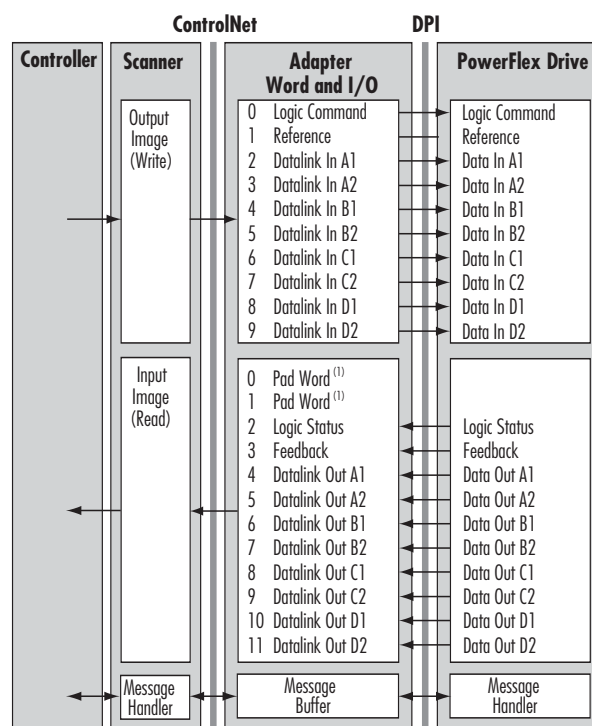
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	CN Addr Cfg	Configures the ControlNet node address if the Node Address Switches are set to "00."
04	CN Addr Act	Displays the ControlNet node address actually used by the adapter.
05	CN Rate Cfg	Configures the ControlNet data rate (megabits per second) at which the adapter communicates.
06	CN Rate Act	Displays the ControlNet data rate (megabits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or set defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	CN Active Cfg	Displays the source from which the adapter node address is taken.
13	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
14	DPI I/O Act	Displays the I/O that the adapter is actively transmitting.
15	Flt Cfg Logic	Sets the data that is sent to the drive if any of the following is true: <ul style="list-style-type: none"> Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. Parameter 11 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle.
16	Flt Cfg Ref	
17	Flt Cfg A1 In	
18	Flt Cfg A2 In	
19	Flt Cfg B1 In	
20	Flt Cfg B2 In	
21	Flt Cfg C1 In	
22	Flt Cfg C2 In	
23	Flt Cfg D1 In	
24	Flt Cfg D2 In	
25	M-S Input	Selects the data produced by the scanner and consumed by the adapter.
26	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
27	Ref Adjust	Sets the percent scale factor for the Reference from the network.

SPECIFICATIONS

Communications	Network	Protocol	ControlNet
		Data Rates	5 Mbps
	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive (DPI)	275 mA at 5 VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE



PRODUCT PROFILE

20-COMM-R REMOTE I/O™ ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-R Remote I/O adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a Remote I/O network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address (0-77) and DIP switches for setting the network data rate (57.6 Kbps/115.2 Kbps/230.4 Kbps), rack size, group number, and last group in rack. Alternatively, the switches can be disabled to allow these settings to be configured using parameters.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading/writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

Rack Size – Two rack sizes can be configured:

- 1/4 Rack - Logic Command/Status
- 1/2 Rack - Logic Command/Reference and Logic Status/Feedback

Block Transfer is always enabled and is also used for I/O messaging.



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	RIO Addr Cfg	Sets the node address if dipswitches 7 and 8 are ON.
04	RIO Addr Act	Displays the node address actually used by the adapter.
05	RIO Rate Cfg	Sets the data rate (kilobits per second) that the adapter communicates at when dipswitches 7 and 8 are ON.
06	RIO Rate Act	Displays the data rate (kilobits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or reset defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects that communications have been disrupted.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	DPI I/O Config	Selects the I/O that is transferred through the adapter.
13	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
14	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
15	Flt Cfg Ref	
16	Flt Cfg A1 In	
17	Flt Cfg A2 In	
18	Flt Cfg B1 In	
19	Flt Cfg B2 In	
20	Flt Cfg C1 In	
21	Flt Cfg C2 In	
22	Flt Cfg D1 In	
23	Flt Cfg D2 In	
24	Switches	Displays the status of the dipswitch settings.
25	Start RIO Group	Sets the starting module group if dipswitches 7 and 8 are ON.
26	Last RIO Rack	Enables or disables the last physical group within a rack address if dipswitches 7 and 8 are ON.
27	Rack Size	Sets the rack size if dipswitches 7 and 8 are ON.

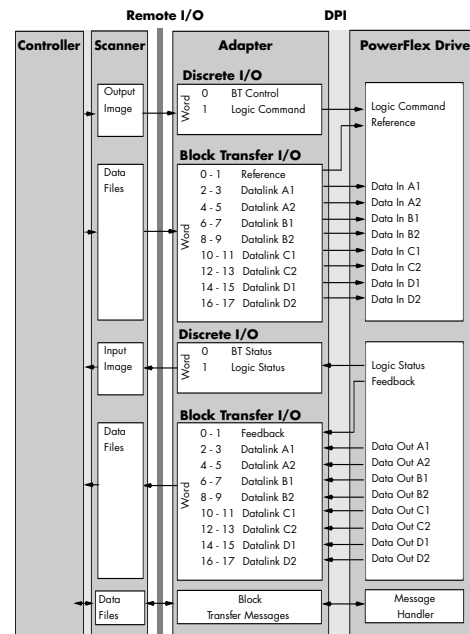
DIP SWITCH SETTINGS

Switches	Setting	Description
SW 1 and SW 2	1 2	Switches are used together to set the starting module group:
	0 0	Group 0 (Default)
	1 0	Group 2
	0 1	Group 4
	1 1	Group 6- Only used if SW 4 is set to "0" (1/4 rack).
SW 3	0	Not the last RIO rack (Default)
	1	Last RIO group within the rack
SW 4	0	1/4 rack (Default)
	1	1/2 rack
SW 5	0	Not Used
SW 6	0	Not Used
SW 7 and SW 8	7 8	Switches are used together to set the Remote I/O baud rate:
	0 0	57.6 kbps (Default)
	1 0	115.2 kbps
	0 1	230.4 kbps
	1 1	Disable all hardware switches. The adapter uses the following parameters instead of switches: 3 - [RIO Addr Cfg] for the rack address 5 - [RIO Rate Cfg] for the baud rate 25 - [Start RIO Group] for the starting module group 26 - [Last RIO Rack] for the last physical rack 27 - [Rack Size] for the rack size

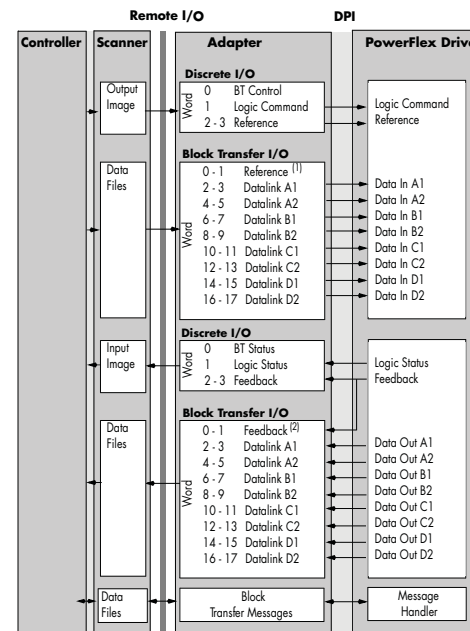
SPECIFICATIONS

Communications	Network	Protocol	Remote I/O
	Drive	Data Rates	57.6, 115.2 or 230.4 Kbps
Electrical	Consumption	Protocol	DPI
		Data Rates	125 or 500 Kbps
Regulatory Compliance	Drive (DPI)	Network	250 mA at 5 VDC
		UL	N/A
		cUL	UL508C
		CE	CAN/CSA C22.2 No. 14-1791
		CTick	EN50178 and EN61800-3
			EN61800-3

EXAMPLE I/O IMAGE – 1/4 RACK



EXAMPLE I/O IMAGE – 1/2 RACK



⁽¹⁾ Not used in 1/2 rack. The space is reserved so the Datalinks occupy the same Block Transfer I/O locations regardless of 1/4 or 1/2 rack configuration.

⁽²⁾ Feedback is transmitted in both Discrete I/O and Block Transfer I/O.

PRODUCT PROFILE

20-COMM-S RS485 DF1™ ADAPTER

PowerFlex®
Communications

The PowerFlex® 20-COMM-S RS485 DF1 adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a simple means to multi-drop PowerFlex drives for connectivity to DriveExplorer™ when other networks, such as DeviceNet™, are not being used.

The 20-COMM-S can also be used with Allen-Bradley controllers for non time-critical applications involving a simple network to control PowerFlex drives and read/write parameters.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address and the network data rate. Alternatively, the switches can be disabled, allowing the node address to be set using a configuration parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS or 1203-USB converter and then route over the network to access other Allen-Bradley drives.

DF1 Messaging – DF1 Messaging can be used by Allen-Bradley controllers to transfer data to and from the drive, including control data. The following data can be sent and received by the adapter using N40/N41: file addressing:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 8 parameters
- Explicit Messaging - read/write drive parameters using Block Transfer Emulation



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

PARAMETERS

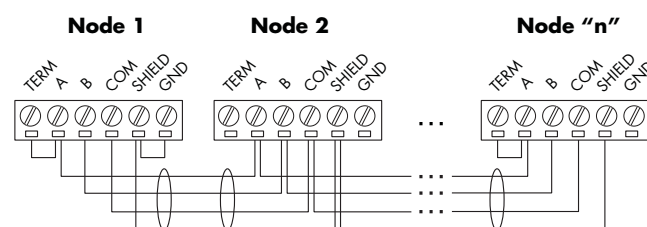
No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	DF1 Addr Cfg	Sets the node address if the Data Rate switch is set to "PGM" (Program).
04	DF1 Addr Act	Displays the node address actually used by the adapter.
05	DF1 Rate Cfg	Sets the data rate (kilobits per second) at which the adapter communicates when the Data Rate switch is set to "PGM" (Program).
06	DF1 Rate Act	Displays the data rate (bits or kilobits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or reset defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects that communications have been disrupted.
11	Active Cfg	Displays the source from which the adapter node address and data rate are taken (switches or parameters).
12	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
13	DPI I/O Act	Displays the I/O that the adapter is actively transmitting.
14	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
15	Flt Cfg Ref	
16	Flt Cfg A1 In	
17	Flt Cfg A2 In	
18	Flt Cfg B1 In	
19	Flt Cfg B2 In	
20	Flt Cfg C1 In	
21	Flt Cfg C2 In	
22	Flt Cfg D1 In	
23	Flt Cfg D2 In	
24	CRC/BCC Cfg	Sets the method for error detection (BBC or CRC) in data communications.
25	CRC/BCC Act	Displays the actual error detection method (BBC or CRC) used for data communications.
26	Dup Msg Detect	Determines if the adapter ignores duplicate messages.

SPECIFICATIONS

Communications	Network	Protocol	DF1
		Data Rates	1200 - 38400 bps
	Drive	Protocol	DPI
		Data Rates	125 or 500 Kbps
Electrical	Consumption	Drive (DPI)	150 mA at 5 VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

CONNECTOR TERMINALS

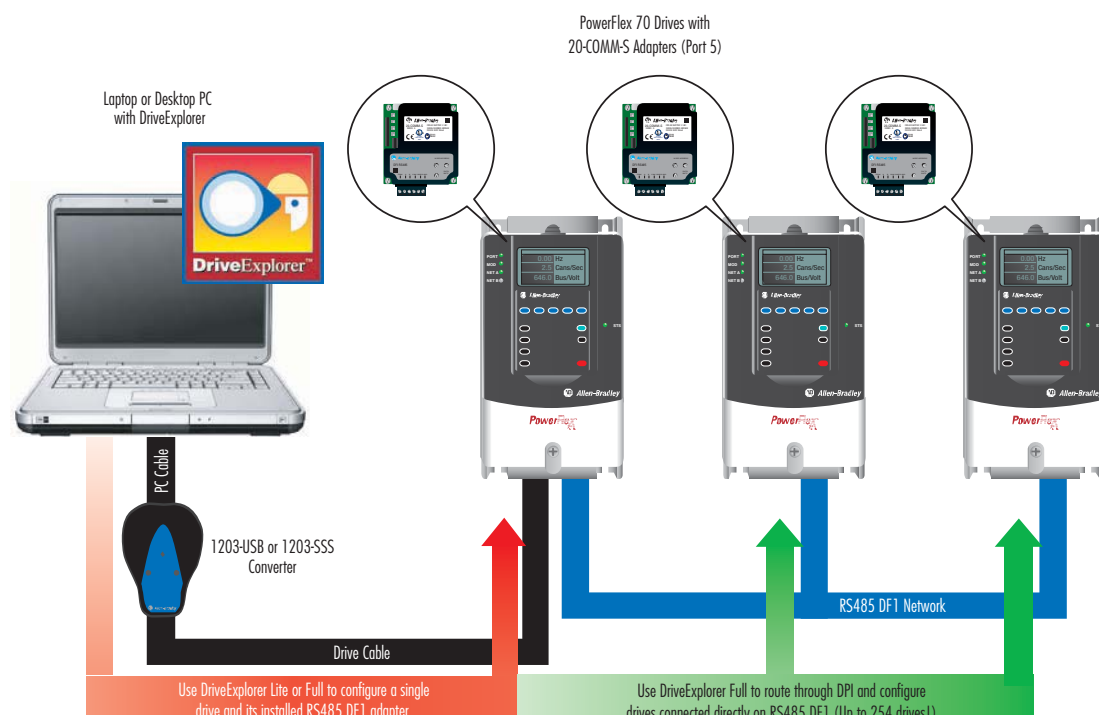
Terminal	Signal	Function
TERM	Termination	Signal RC Termination
A	Signal A	TxRxTx -
B	Signal B	TxRxTx +
COM	Common	Signal Common
SHIELD	Shield	Shield RC Termination
GND	Ground	Shield Ground Termination



N-FILE SUMMARY

Data Category	N-File Address	Description
Explicit Messaging	N40:0-63	Block Transfer Emulation
I/O Messaging	N41:0	Logic Command/Status
	N41:1-2	Reference/Feedback
	N41:3-18	Datalinks A-D
DPI Port Config	N42:3	Comms Time-Out Value

EXAMPLE SYSTEM



PRODUCT PROFILE

1203-SSS RS232 DF1™ MODULE

PowerFlex®
Communications

The 1203-SSS AnaCANda provides an RS-232 DF1 connection to PowerFlex® 70, 700, 700H and 700S AC drives, other DPI-based host devices, and legacy SCANport-based host devices. The adapter provides a means for drive software tools, such as DriveExplorer™ and DriveExecutive™, to communicate with drive products.

PRODUCT HIGHLIGHTS

External Connection – The module connects externally and is powered by the drive.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over EtherNet/IP™, ControlNet™, DeviceNet™, or RS-485 DF1 to access other Allen-Bradley drives (1-to-many connection). This eliminates the need for a separate network connection and interface.

Legacy SCANport Connectivity – Use the 1203-SSS with DriveExplorer or DriveManager™ to connect with 1305 and 1336 PLUS II drives, and other SCANport-based host products.

Use the 1203-SFC cable (supplied with the 1203-SSS) to connect directly to 1203-GU6 DeviceNet, 1203-CN1 ControlNet, or 1203-EN1 EtherNet/IP modules, and route over the network to access other Allen-Bradley drives.

DriveExplorer Lite Included – A DriveExplorer Lite CD is included with the 1203-SSS. DriveExplorer Lite is freeware and can also be downloaded at:
http://www.ab.com/drives/driveexplorer/free_download.html

Flash Upgradeable – The module can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available. The module is also the primary connection mechanism for flashing drives and other peripherals.



ACCESSORIES

Do you have a PC with only a USB connection? Use a USB to Serial adapter, such as an Allen-Bradley 9300-USBS, to connect to the RS232 side of the 1203-SSS. The adapter is a small, portable unit with no AC power required. It has also been tested with Allen-Bradley DriveExplorer and DriveExecutive software tools.

Do you want to connect to a drive without having to open the enclosure door? Use a GracePort™ interface, such as a P-A19-B3 (Nema 4/12 interface) or P-A19-F3R0 (NEMA 4/12 interface with AC outlet), available from Grace Engineered Products Inc. (<http://www.grace-eng.com>).

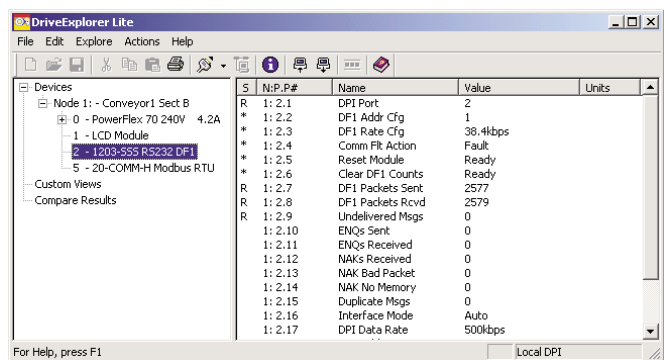
PARAMETERS

No.	Name	Description
01	Adapter Port	Displays the port to which the adapter is connected.
02	DF1 Addr Cfg	Configures the DF1 address used for the serial converter.
03	DF1 Rate Cfg	Configures the data rate used for the serial port.
04	Comm Flt Action	Sets the action that the module will take if it detects that communications have been disrupted.
05	Reset Module	Used to reset the adapter or reset defaults.
06	Clear DF1 Counts	Used to clear the DF1 statistical parameters (7-15).
07	DF1 Packets Sent	Displays the number of DF1 packets sent by the serial converter.
08	DF1 Packets Rcvd	Displays the number of DF1 packets received by the serial converter.
09	Undelivered Msgs	Displays the number of DF1 packets sent by the serial converter and not acknowledged.
10	ENQs Sent	Displays the number of ENQs sent by the serial converter.
11	ENQs Received	Displays the number of ENQs received by the serial converter.
12	NAKs Received	Displays the number of NAKs received by the serial converter.
13	NAK Bad Packet	Displays the number of NAKs received by the serial converter because of bad packets.
14	NAK No Memory	Displays the number of NAKs received by the serial converter because of insufficient buffer memory.
15	Duplicate Msgs	Displays the number of duplicate messages sent by the serial converter.
16	Interface Mode	Selects whether the serial converter will autodetect DPI or SCANport devices and use the appropriate protocol.
17	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
18	DF1 Addr Act	Displays the actual DF1 address used by the serial converter.
19	DF1 Rate Act	Displays the actual data rate used by the serial converter.
20	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
21	Datalink Size	Displays the size of each Datalink word.

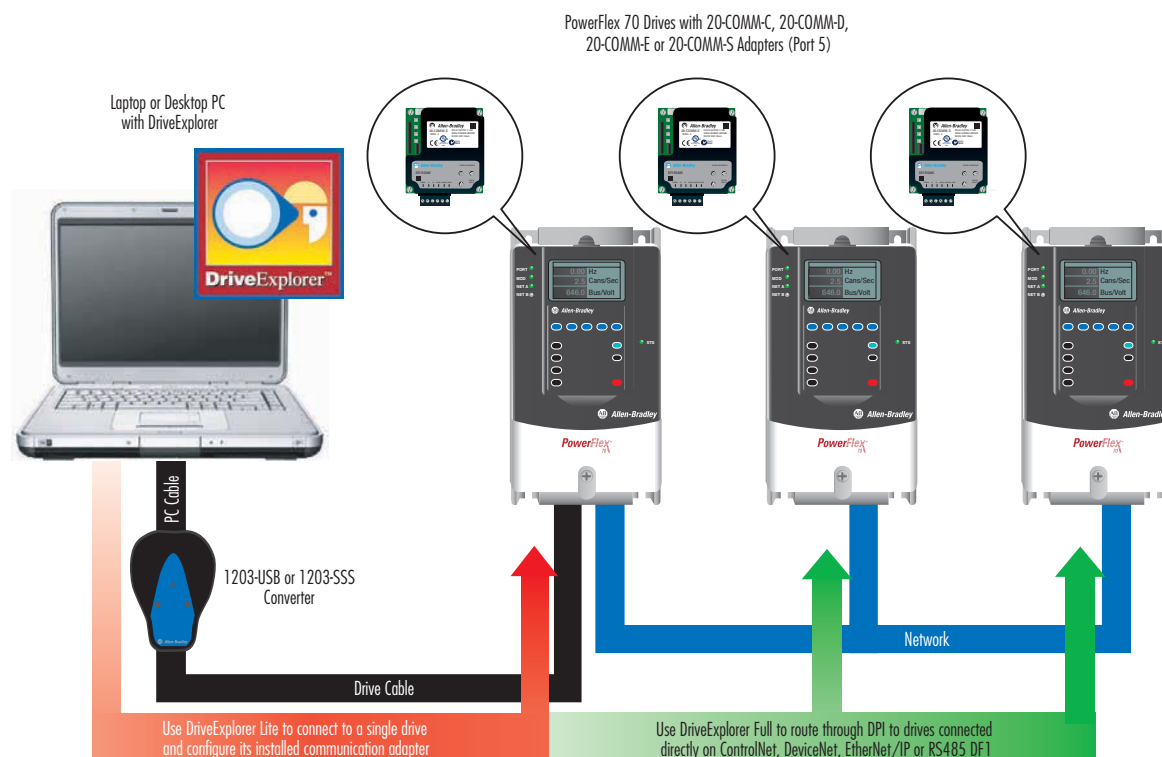
SPECIFICATIONS

Communications	Network	Protocol	DF1
		Data Rates	9600-38400 bps
	Drive	Protocol	DPI or SCANport
		Data Rates	125 or 500 Kbps (DPI only)
Electrical	Consumption	Drive (DPI)	130 mA at 12 VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	AS/NZS 2064, Group 1, Class A

DriveExplorer LITE



ROUTING DIAGRAM



PRODUCT PROFILE

1769-SM1 COMPACT I/O™ MODULE

PowerFlex®
Communications

The 1769-SM1 Compact I/O module provides a direct 1769 platform connection for PowerFlex®, 70, 700, 700H and 700S drives, other DPI-based host devices, and SCANport-based Host devices such as 1305 and 1336 PLUS II drives. The 1769-SM1 can be used with the MicroLogix 1500, CompactLogix, and remote 1769-based nodes such as the 1769-ADN DeviceNet™ adapter to control, configure and collect data.

PRODUCT HIGHLIGHTS

1769 Platform Connectivity – The module can be used in 1769-based systems, such as:

- MicroLogix 1500 controllers
- CompactLogix controllers
- Remote 1769-Based node adapters (1769-ADN DeviceNet, etc.)

Three DPI/SCANport Channels – Three channels are provided, allowing any combination of up to three PowerFlex 70, 700, 700H and 700S drives (DPI) and/or SCANport (1305, 1336 PLUSII, etc.) devices to be connected per module.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command/Reference
- Logic Status/Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading/writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.



User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the controller or scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex DPI HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to and from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available.

PARAMETERS

No.	Name	Description
01	Config Mode	Displays the module's configuration mode.
02	Reset Module	Used to reset the module or set defaults.
03	Port ID 1	Displays the port number to which CH1 is connected.
04	Data Rate 1	Displays the data rate (kilobits per second) used by the CH1 drive.
05	Ref/Fbk Size 1	Displays the size of the Reference/Feedback words for the CH1 drive.
06	Datalink Size 1	Displays the size of each Datalink word for the CH1 drive.
07	I/O Config 1	Selects the I/O that is transferred through the module to the CH1 drive.
08	I/O Actual 1	Displays the I/O actively transmitted by the module for the CH1 drive.
09	Idle Action 1	Sets the action that the module and CH1 drive will take if it detects that the controller was switched to Program or Test mode.
10	Flt Cfg Logic 1	Sets the data that is sent to the CH1 drive if Parameter 09 - [Idle Action 1] is set to "Send Flt Cfg" and the controller is put into Program or Test mode.
11	Flt Cfg Ref 1	
12	Flt Cfg A1 In1	
13	Flt Cfg A2 In1	
14	Flt Cfg B1 In1	
15	Flt Cfg B2 In1	
16	Flt Cfg C1 In1	
17	Flt Cfg C2 In1	
18	Flt Cfg D1 In1	
19	Flt Cfg D2 In1	
20	Port ID 2	Displays the port number to which CH2 is connected.
21	Data Rate 2	Displays the data rate (kilobits per second) used by the CH2 drive.
22	Ref/Fbk Size 2	Displays the size of the Reference/Feedback words for the CH2 drive.
23	Datalink Size 2	Displays the size of each Datalink word for the CH2 drive.
24	I/O Config 2	Selects the I/O that is transferred through the module to the CH2 drive.
25	I/O Actual 2	Displays the I/O actively transmitted by the module for the CH2 drive.
26	Idle Action 2	Sets the action that the module and CH2 drive will take if it detects that the controller was switched to Program or Test mode.
27	Flt Cfg Logic 2	Sets the data that is sent to the CH1 drive if Parameter 26 - [Idle Action 2] is set to "Send Flt Cfg" and the controller is put into Program or Test mode.
28	Flt Cfg Ref 2	
29	Flt Cfg A1 In2	
30	Flt Cfg A2 In2	
31	Flt Cfg B1 In2	
32	Flt Cfg B2 In2	
33	Flt Cfg C1 In2	
34	Flt Cfg C2 In2	
35	Flt Cfg D1 In2	
36	Flt Cfg D2 In2	
37	Port ID 3	Displays the port number to which CH3 is connected.
38	Data Rate 3	Displays the data rate (kilobits per second) used by the CH3 drive.
39	Ref/Fbk Size 3	Displays the size of the Reference/Feedback words for the CH3 drive.
40	Datalink Size 3	Displays the size of each Datalink word for the CH3 drive.
41	I/O Config 3	Sets the I/O that is transferred through the module to the CH3 drive.
42	I/O Actual 3	Displays the I/O actively transmitted by the module for the CH3 drive.
43	Idle Action 3	Sets the action that the module and CH3 drive will take if it detects that the controller was switched to Program or Test mode.
44	Flt Cfg Logic 3	Sets the data that is sent to the CH3 drive if Parameter 43 - [Idle Action 3] is set to "Send Flt Cfg" and the controller is put into Program or Test mode.
45	Flt Cfg Ref 3	
46	Flt Cfg A1 In3	
47	Flt Cfg A2 In3	
48	Flt Cfg B1 In3	
49	Flt Cfg B2 In3	
50	Flt Cfg C1 In3	
51	Flt Cfg C2 In3	
52	Flt Cfg D1 In3	
53	Flt Cfg D2 In3	

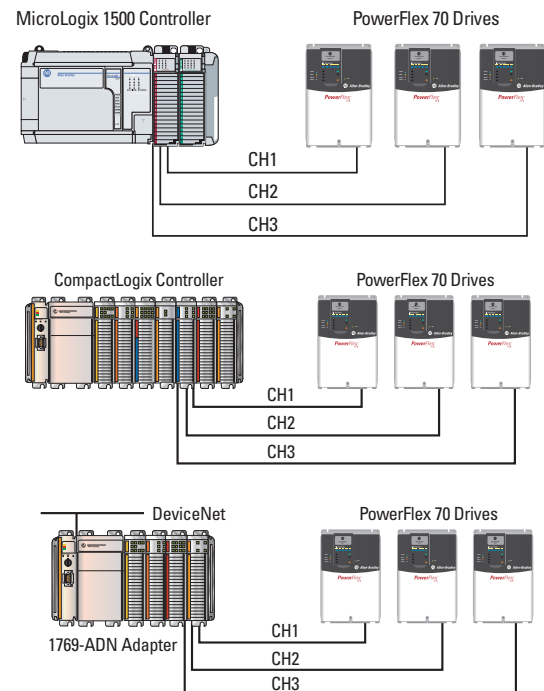
SPECIFICATIONS

Communications	Drive	Protocol	DPI or SCANport
		Data Rates	125 or 500 Kbps (DPI only)
Electrical	Consumption	Module	280 mA at 5 VDC
		Channel (each)	60 mA at 12 VDC
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, 1997, Group 1, Class A

EXAMPLE I/O IMAGE (POWERFLEX 70/700 STANDARD)

Output Image	Input Image	Word		
		CH1	CH2	CH3
Channel Enable	Channel Status	0	4	8
Logic Command	Logic Status	1	5	9
Reference (LSW)	Feedback (LSW)	2	6	10
Reference (MSW)	Feedback (MSW)	3	7	11
Datalink In A1 (low)	Datalink Out A1 (low)	12	16	20
Datalink In A1 (high)	Datalink Out A1 (high)	13	17	21
Datalink In A2 (low)	Datalink Out A2 (low)	14	18	22
Datalink In A2 (high)	Datalink Out A2 (high)	15	19	23
Datalink In B1 (low)	Datalink Out B1 (low)	24	28	32
Datalink In B1 (high)	Datalink Out B1 (high)	25	29	33
Datalink In B2 (low)	Datalink Out B2 (low)	26	30	34
Datalink In B2 (high)	Datalink Out B2 (high)	27	31	35
Datalink In C1 (low)	Datalink Out C1 (low)	36	40	44
Datalink In C1 (high)	Datalink Out C1 (high)	37	41	45
Datalink In C2 (low)	Datalink Out C2 (low)	38	42	46
Datalink In C2 (high)	Datalink Out C2 (high)	39	43	47
Datalink In D1 (low)	Datalink Out D1 (low)	48	52	56
Datalink In D1 (high)	Datalink Out D1 (high)	49	53	57
Datalink In D2 (low)	Datalink Out D2 (low)	50	54	58
Datalink In D2 (high)	Datalink Out D2 (high)	51	55	59

EXAMPLE SYSTEMS



PRODUCT PROFILE

DPI WIRELESS INTERFACE MODULE

The DPI Wireless Interface Module (WIM) provides a wireless communication interface between a Pocket PC, laptop computer or desktop computer equipped with *Bluetooth*® wireless technology, and any Allen-Bradley® product supporting the DPI™ (or SCANport™) protocol. Connectivity includes the entire PowerFlex® 7-Class Family of drives and peripherals, and legacy products including the line of Bulletin 1336 AC drives.

PRODUCT HIGHLIGHTS

Multiple Enclosure Styles – The DPI WIM is offered in two different form-factors to meet your environment needs:

- NEMA 1 (cat. no. 20-WIM-N1) (shown left)
- NEMA 4 (cat. no. 20-WIM-N4S) (shown right)

Versatile Mounting – The NEMA 1 DPI WIM can be installed in a NEMA 1 DPI HIM bezel (20-HIM-B1) mounted on the front of an enclosure door, or it can be installed in the HIM cradle on the front of the drive (Port 1). The NEMA 4 DPI WIM is designed for NEMA 4 and permanent-mount applications.

Multiple Tool Options – A number of tools can be used to configure and communicate with the WIM and connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as Pocket DriveExplorer™ for Pocket PC, DriveExplorer™ or DriveExecutive™.

DPI Routing – Connect point-to-point to a PowerFlex 7-Class drive using the DPI WIM and then route out over EtherNet/IP™, ControlNet™, DeviceNet™ or RS-485 DF1 to access other Allen-Bradley drives (1-to-many connection). This eliminates the need for a separate network connection and interface for each drive.

Legacy SCANport Connectivity – Use the DPI WIM with Pocket DriveExplorer for Pocket PC, DriveExplorer or DriveExecutive to connect with 1305 and 1336 PLUS II drives, and other SCANport-based host products.



Security – Use the security mode parameter to limit access to qualified personnel. This safety feature prevents unintended drive configuration and/or machine operation.

User Configurable Fault Response – Selects the action that the WIM and drive will take for the following condition:

- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the WIM zeros the I/O data transmitted to the drive
- Hold Last – the WIM continues sending the I/O data prior to the fault and the drive continues in its present state

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using Pocket DriveExplorer for Pocket PC, DriveExplorer or DriveExecutive. View actual Logic Command/Speed Reference and Logic Status/Speed Feedback data being transmitted to and from the controller.

Flash Upgradeable – The DPI WIM can be used to flash update its own firmware, and the firmware of other connected DPI products such as PowerFlex 7-Class drives and peripherals through Pocket DriveExplorer for Pocket PC, DriveExplorer or DriveExecutive to take full advantage of new firmware features as they become available.

PARAMETERS (DPI MODE)

No.	Name	Description
01	DPI Port	Displays the port on the drive to which the WIM is connected.
02	Comm Flt Act	Sets the action that the WIM and drive will take if the WIM detects that wireless communications are disrupted. This setting is effective only if I/O that controls the drive is transmitted through the WIM.
03	Security Mode	Enables/disables the security mode for the WIM, which prevents accessing its parameters and the connected drive for configuration.
04	Security PIN	Sets the PIN number to access WIM parameters for configuration when Parameter 03 - [Security Mode] is set to 1 = PIN Required.
05	Reset Module	Resets the adapter or sets parameter defaults.
06	Ref/Fdbk Size	Displays the size of the Speed Reference/Feedback words which is determined by the drive. The WIM automatically uses the correct size.
07	Datalink Size	Displays the size of each Datalink word which is determined by the drive. The WIM automatically uses the correct size.
08	DPI Data Rate	Displays the data rate used by the DPI drive. This data rate is set in the drive, and the WIM autobauds to it.
09	Clear DF1 Counts	Resets the DF1 statistical parameters 10 and 11 to 0 if set to "1 = Clear Counts." This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
10	DF1 Packets Sent	Displays the number of DF1 packets sent by the WIM. This parameter is normally about equal to the value in parameter 11.
11	DF1 Packets Rcvd	Displays the number of DF1 packets received by the WIM. This parameter is normally about equal to the value in parameter 10.

SPECIFICATIONS

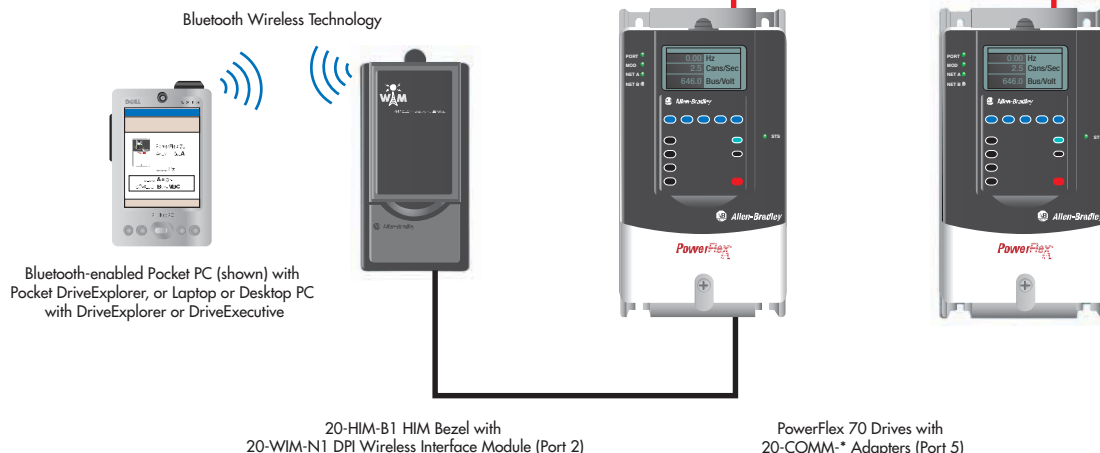
Radio		Transceiver	Bluetooth v1.1 Compliant
		Frequency	2.4 GHz Frequency Hopping
		Power Range	2.5 mW Maximum RF Output Class II - 10 m (32.8 ft)
Communications	Drive	Protocol	DPI or SCANPort
		Data Rate	125 or 500 Kbps (DPI only)
Electrical	Consumption	Drive Network	130 mA at 12 VDC None
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	AS/NZS 2064, Group 1, Class A
		FCC ID	SNT-2XWIMNX
		IC	5450A-2XWIMNX

PARAMETERS (SCANport MODE)

No.	Name	Description
01	Adapter Port	Displays the port on the drive to which the WIM is connected.
02	Security Mode	Enables/disables the security mode for the WIM, which prevents accessing its parameters and the connected drive for configuration.
03	Security PIN	Sets the PIN number to access WIM parameters for configuration when Parameter 03 - [Security Mode] is set to 1 = PIN Required.
04	Comm Flt Action	Sets the action that the WIM and drive will take if the WIM detects that wireless communications are disrupted. This setting is effective only if I/O that controls the drive is transmitted through the WIM.
05	Reset Module	Resets the adapter or sets parameter defaults.
06	Clear DF1 Counts	Resets the DF1 statistical parameters 10 and 11 to 0 if set to "1 = Clear Counts." This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
07	DF1 Packets Sent	Displays the number of DF1 packets sent by the WIM. This parameter is normally about equal to the value in parameter 11.
08	DF1 Packets Rcvd	Displays the number of DF1 packets received by the WIM. This parameter is normally about equal to the value in parameter 10.

NETWORK EXAMPLE

Route through DPI to drives connected on
ControlNet (20-COMM-C), DeviceNet (20-COMM-D),
EtherNet/IP (20-COMM-E) or DF1 (20-COMM-S)



PRODUCT PROFILE

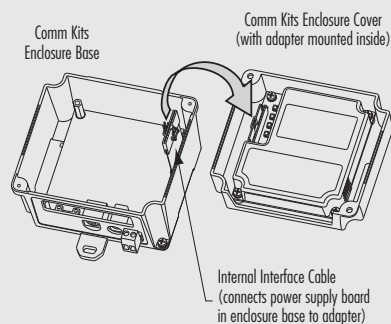
DPI EXTERNAL COMMUNICATIONS KIT

The DPI External Communications Kit (20-XCOMM-DC-BASE) provides an additional network connection for a PowerFlex® 70, 700, and 700S AC drive that already has an installed 20-COMM adapter.

PRODUCT HIGHLIGHTS

Multiple Network Connectivity –

Provides a secondary network connection for DPI-based PowerFlex 70, 700, and 700S AC drives. One connection can be dedicated for drive control (for example, start, stop) while additional connections may be used for software tools (for example, DriveExplorer™, DriveExecutive™), data collection, etc.



The kit is for use with only the following Allen-Bradley communication adapters (sold separately):

- 20-COMM-B BACnet® MS/TP
- 20-COMM-C ControlNet™ (coax)
- 20-COMM-D DeviceNet™ (series B or later)
- 20-COMM-E EtherNet/IP™
- 20-COMM-K CANopen®
- 20-COMM-M Modbus/TCP
- 20-COMM-Q ControlNet™ (fiber)

Universal Mounting – Direct panel, DIN rail, or even Zero-Stacking™ (side-by-side) mounting is possible using the all-aluminum, EMI noise-immune enclosure.

Increased System I/O – Allows for the installation of additional I/O. An optional I/O board (20-XCOMM-IO-OPT1) can be

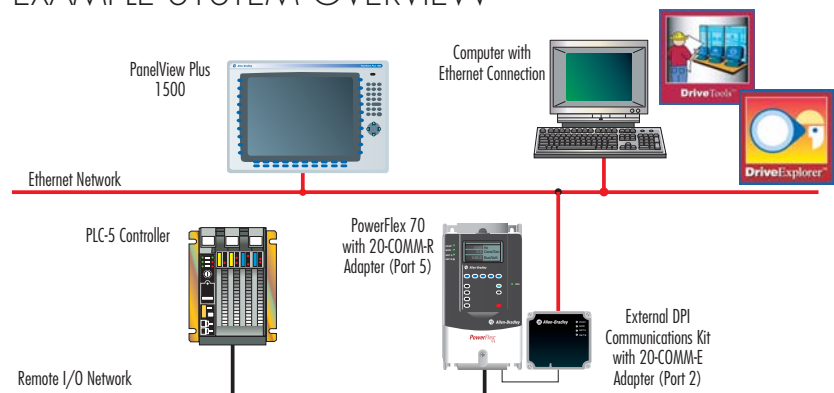
PowerFlex®
Communications

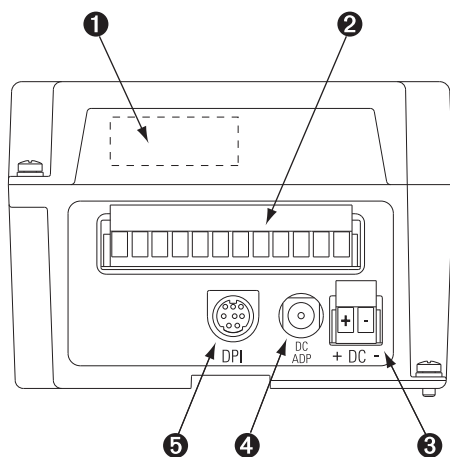


installed in the kit for applications that require additional general-purpose network I/O that a controller can use. The drive and I/O devices are handled as one node on the network, saving network node count and increasing network throughput.

Versatile Power Connections – Connect either a 24 VDC power source to the kit's convenient removable terminal block, or use the Allen-Bradley AC power adapter (20-XCOMM-AC-PS1, purchased separately) that comes with interchangeable region plugs (US, UK, Europe, and Australia). The kit can also be daisy-chained to provide power for additional kits.

EXAMPLE SYSTEM OVERVIEW

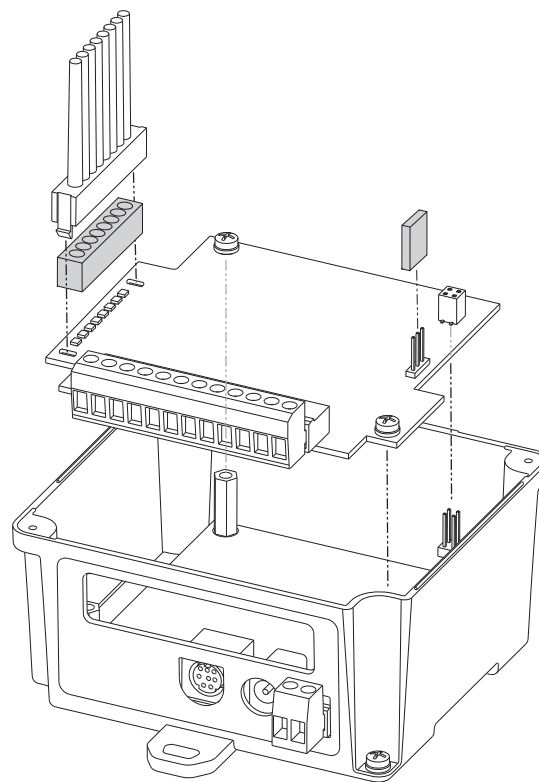




I/O BOARD OPTION

The I/O board (20-XCOMM-IO-OPT1, sold separately) features:

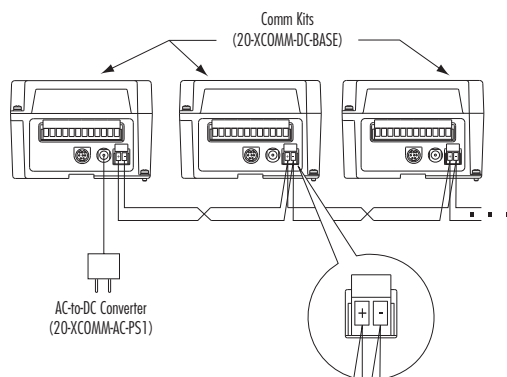
- 6 non-isolated 24 VDC digital inputs
- 2 isolated contact relay outputs
- 8 I/O LED status indicators



Item	Connector	Description
1	Network	Network connection for communication adapter
2	Optional I/O	I/O connection for 20-XCOMM-IO-OPT1 board
3	24 VDC	Connection for 24 VDC power source
4	AC-to-DC	Connection for 20-XCOMM-AC-PS1 power adapter
5	DPI	DPI Connection for 1202-C** communication cable

DAISY-CHAINING KITS

You can power additional external communication kits by daisy-chaining them together.

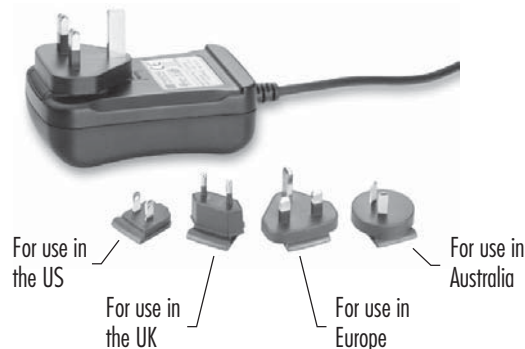


SPECIFICATIONS

Communications	Network	Protocol	Dependent on installed adapter
	Drive	Data Rates	Dependent on installed adapter
Electrical	Consumption	Drive	DPI 125 or 500 Kbps
		Network	Ethernet None ControlNet None DeviceNet 60 mA at 24 VDC
	DC Power Supply Requirement		20-COMM-E 140 mA at 24 VDC 20-COMM-C 104 mA at 24 VDC 20-COMM-Q 135 mA at 24 VDC 20-COMM-D 60 mA at 24 VDC
Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

AC POWER ADAPTER OPTION

The AC power adapter (20-XCOMM-AC-PS1) is an accessory AC-to-DC converter for use with the external communications kit. The converter, which comes with interchangeable plugs, is shown below. The converter connects to any available 100-240 VAC receptacle. Use the appropriate plug for your region:



PRODUCT PROFILE

1203-USB UNIVERSAL SERIAL BUS™ CONVERTER

The 1203-USB Converter provides direct USB connectivity to PowerFlex® 70 (SC or EC), 700 (SC or VC), 700H and 700S drives, PowerFlex 4, 40, 40P and 400 drives, and other DPI-based or DSI-based host devices all-in-one product (combines 1203-SSS & 22-SCM-232 technology). It can also be used with legacy SCANport-based host devices such as Bulletin 1336 PLUS II and 1305 drives. The converter provides a means for drive software tools, such as DriveExplorer™ and DriveTools SP™ (which includes DriveExecutive™ and DriveObserver™), to communicate with drive products.

PRODUCT HIGHLIGHTS

External Connection – The converter connects externally and is powered by the connected drive. No additional power source is required.

DPI Routing Support – When connected to a PowerFlex Architecture-Class drive, use DriveExplorer with a 1203-USB converter to route over BACnet MS/TP, EtherNet/IP™, ControlNet™, DeviceNet™, or RS-485 DF1 to access other Allen-Bradley drives (1-to-many connection). This eliminates the need for a separate network connection and interface.

DSI Routing Support – When connected to a PowerFlex Component-Class drive, use DriveExplorer with a 1203-USB converter to route over EtherNet/IP™, ControlNet™, or DeviceNet™ to access other Allen-Bradley drives (1-to-many connection). Like the 22-SCM-232 module, the converter also has an RTU Master mode. This mode provides connectivity for up to 31 drives via their built-in RS-485 ports. This eliminates the need for a separate network connection and interface.

Legacy SCANport Connectivity – Use the 1203-USB converter with DriveExplorer or DriveTools SP (DriveExecutive and DriveObserver) to connect with 1305 and 1336 PLUS II drives, and other SCANport-based host products.



DriveExplorer Lite/USB Drivers Included – A CD with DriveExplorer Lite and USB drivers is included with the 1203-USB converter. DriveExplorer Lite is freeware and can also be downloaded at: http://www.ab.com/drives/driveexplorer/free_download.html

Flash Upgradeable – The 1203-USB converter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH to take advantage of new firmware features as they become available. The converter is also the primary connection mechanism for flashing drives and other peripherals.

ACCESSORIES

Do you want to connect to a drive without having to open the enclosure door? The following GracePort™ interface options provide this capability:

DPI/SCANport Products

- P-A19-B3 (NEMA 4/12 interface with 8-pin mini-DIN connector)
- P-A19-F3R0 (same as above plus convenience AC outlet)

DSI Products

- P-A20-B3 (NEMA 4/12 interface with RJ45 connector)
- P-A20-F3R0 (same as above plus convenience AC outlet)

For more information about these and other related products, please visit Grace Engineered Products Inc. at <http://www.grace-eng.com>

PARAMETERS (DPI MODE)

No.	Name	Description
01	DPI Port	Displays the port on the host drive which the converter is connected.
02	Reset Module	Resets the converter or sets the converter parameters to factory default.
03	Clear DF1 Counts	Resets the DF1 statistical Parameter 04 - [DF1 Packets Sent] and Parameter 05 - [DF1 Packets Rcvd] to 0 if set to "1 = Clear Counts". This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
04	DF1 Packets Sent	Displays the number of DF1 packets sent by the converter. This parameter is normally about equal to the value in Parameter 05 - [DF1 Packets Rcvd].
05	DF1 Packets Rcvd	Displays the number of DF1 packets received by the converter. This parameter is normally about equal to the value in Parameter 04 - [DF1 Packets Sent].
06	Interface Mode	Selects whether the converter will autodetect DPI or SCANport devices and use the appropriate protocol.
07	DPI Data Rate	Displays the data rate used by the DPI drive. This data rate is set in the drive, and the converter autobauds to it.
08	Ref/Fdbk Size	Displays the size of the Speed Reference/Feedback words which is determined by the drive. The converter automatically uses the correct size.
09	Datalink Size	Displays the size of each Datalink word which is determined by the drive. The converter automatically uses the correct size.

PARAMETERS (DSI MODE)

No.	Name	Description
01	Adapter	Cfg Sets the operating mode of the converter.
02	Reset Module	Resets the converter or sets the converter parameters to factory default.
03	Clear DF1 Counts	Resets the DF1 statistical Parameter 04 - [DF1 Packets Sent] and Parameter 05 - [DF1 Packets Rcvd] to 0 if set to "1 = Clear Counts". This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
04	DF1 Packets Sent	Displays the number of DF1 packets sent by the converter. This parameter is normally about equal to the value in Parameter 05 - [DF1 Packets Rcvd].
05	DF1 Packets Rcvd	Displays the number of DF1 packets received by the converter. This parameter is normally about equal to the value in Parameter 04 - [DF1 Packets Sent].
06	RTU DSI Addr Cfg	Sets the node address of the converter for use with the converter operating mode set with Parameter 01 - [Adapter Cfg].
07	RTU DSI Addr Act	Displays the node address of the drive that the converter is communicating with when the converter is set to RTU Master mode using Parameter 01 - [Adapter Cfg].
08	Adapter Type	Displays the present operating mode of the converter.

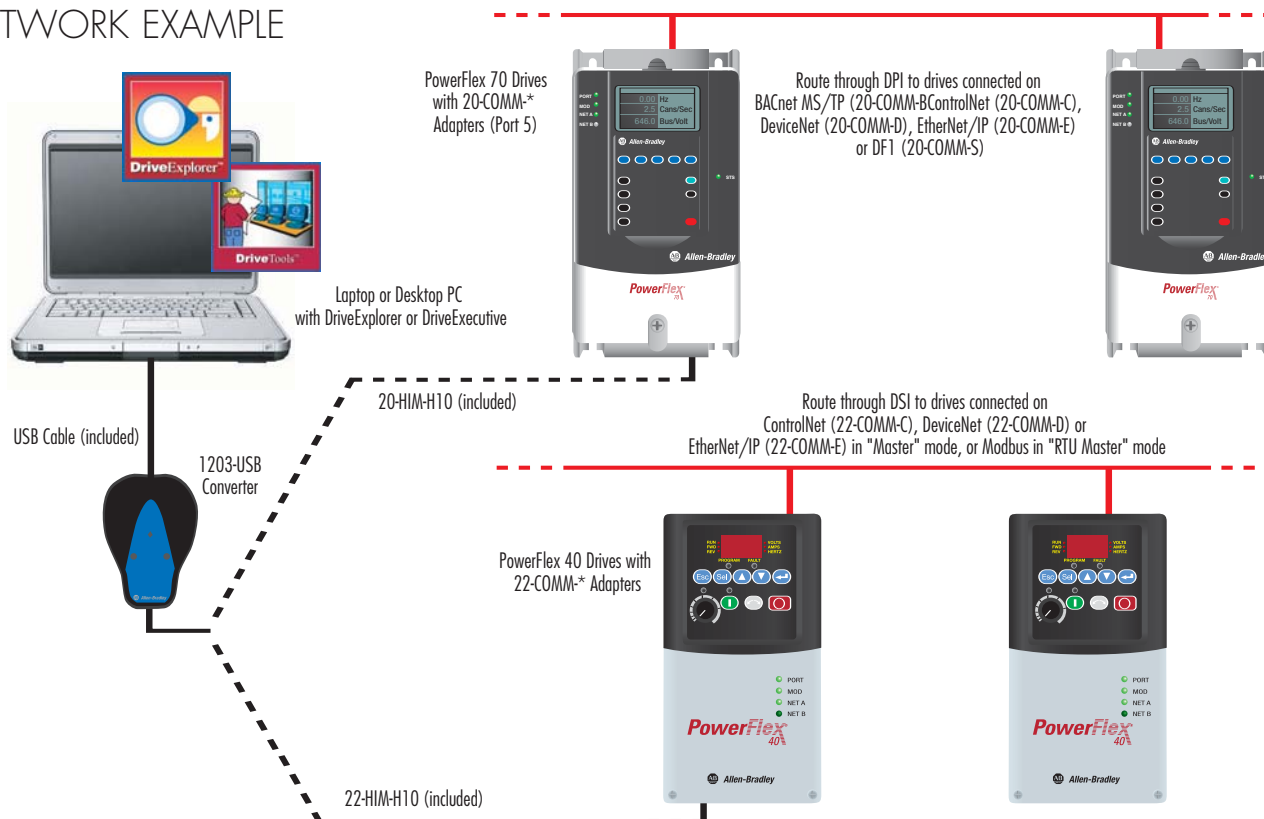
PARAMETERS (SCANport MODE)

No.	Name	Description
01	Adapter Port	Displays the port on the host drive which the converter is connected.
02	Reset Module	Resets the converter or sets the converter parameters to factory default.
03	Clear DF1 Counts	Resets the DF1 statistical Parameter 04 - [DF1 Packets Sent] and Parameter 05 - [DF1 Packets Rcvd] to 0 if set to "1 = Clear Counts". This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
04	DF1 Packets Sent	Displays the number of DF1 packets sent by the converter. This parameter is normally about equal to the value in Parameter 05 - [DF1 Packets Rcvd].
05	DF1 Packets Rcvd	Displays the number of DF1 packets received by the converter. This parameter is normally about equal to the value in Parameter 04 - [DF1 Packets Sent].
06	RTU DSI Addr Cfg	Selects whether the converter will autodetect DPI or SCANport devices and use the appropriate protocol.

SPECIFICATIONS

Communications	Network	Protocol	USB
	Drive	Data Rate	115.2 Kbps
		Protocol	DPI
		Data Rate	125 or 500 Kbps
		Protocol	DSI
		Data Rate	19.2 Kbps
		Protocol	SCANport
		Data Rate	125 Kbps
		Drive	DPI/SCANport
			130 mA at 12 VDC
Electrical	Consumption	DSI	170 mA at 5 VDC
		Network	None
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	AS/NZS 2064, Group 1, Class A

NETWORK EXAMPLE



7-CLASS CONNECTIVITY

Communication Adapter / Module		PowerFlex 7-Class						
		70		700		700H	700S	7000
		Std.	EC	Std.	VC			
1203-SSS	DF1 (RS232)	Y	Y	Y	Y	Y	Y	Y
20-COMM-B	BACnet MS/TP	Y	Y	Y	Y	Y	N	N
20-COMM-C	ControlNet (coax)	Y	Y	Y	Y	Y	Y	Y
20-COMM-D	DeviceNet	Y	Y	Y	Y	Y	Y	Y
20-COMM-E	EtherNet/IP	Y	Y	Y	Y	Y	Y	Y
20-COMM-H	Modbus RTU	Y	Y	Y	Y	Y	Y	Y
	Metasys N2	Y	Y	Y	N	Y	N	Y
	Siemens P1 FLN	Y	Y	Y	N	Y	N	N
20-COMM-I	Interbus	Y	Y	Y	Y	Y	Y	Y
20-COMM-K	CANopen	Y	Y	Y	Y	Y	Y	Y
20-COMM-L	LonWorks	Y	Y	Y	N	Y	N	N
20-COMM-P	PROFIBUS DP	Y	Y	≥v1.002	Y	Y	≥v1.002	Y
20-COMM-Q	ControlNet (fiber)	Y	Y	Y	Y	Y	Y	Y
20-COMM-R	Remote I/O	Y	Y	Y	Y	Y	Y	Y
20-COMM-S	DF1 (RS485)	Y	Y	Y	Y	Y	Y	Y
1769-SM1	Compact I/O	Y	Y	Y	Y	Y	Y	Y
20-WIM-NX	Bluetooth	Y	Y	Y	Y	Y	Y	Y
1203-USB	USB	Y	Y	Y	Y	Y	Y	Y

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